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Seminole Area Will Continue Decline

Highest daily average estimated production in 1926, week ended Dec. 25, 2,385,139 bbls. Lowest in 1926, January 30, 1,915,960 bbls.

Agreement to Postpone Drilling Around Recent Discoveries Aids General Situation. Increase in Output Is Temporary

By Andrew M. Rowley

Highest daily average estimated light oil production in 1926, week ended Dec. 25, 1,797,349 bbls. Lowest in 1926, Jan. 30, 1,371,600 bbls.

While the completion of three Wilcox sand wells in the greater Seminole area and outside the proven limits of pools there, during the past week, changed the general outlook in regard to that section, quick action upon the part of operators in deciding to pinch in the new wells and to hold off all drilling operations around the new producers until market conditions improve, had the effect of counteracting to a great extent any pessimism regarding the situation which was beginning to be felt. It is believed now the new wells will not wield much effect upon the general situation during the remainder of this year at least and that will be well towards next spring before any drilling campaign around the new wells will make itself felt.

The price structure is expected to be maintained because the new wells will be pinched in to 100 barrels daily and production of the greater Seminole area will continue to decline rapidly during the remainder of this year. Temporary increases in production early this week were due to shooting of wells in the area. While the area, as a whole, might show a gain in production during the current week as compared to the average of last week, such an increase is but a temporary condition and a material decline will be experienced before the end of this year.

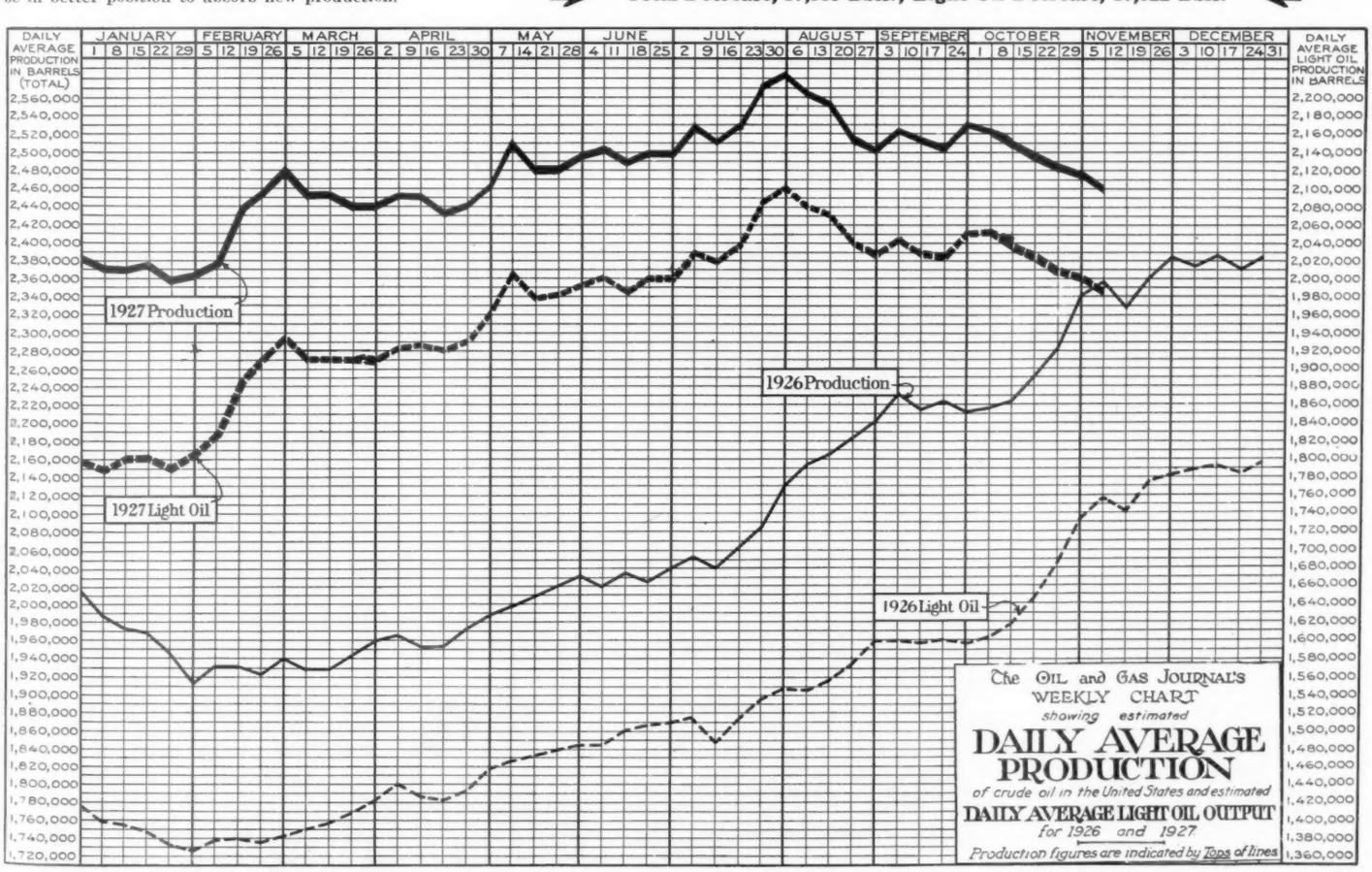
It had been expected an increase in price of light oils would be announced shortly after the first of next year. If the three wells completed in the Seminole area do open new pools when drilling around them starts, such a condition probably will postpone for a time higher crude oil prices. However, there is no way of telling now how big an area will be proved productive or what production might be expected. Consequently, the important factor now is the fact a drilling campaign has been postponed until early next year when the industry will be in better position to absorb new production.

PRODUCTION IN THE UNITED STATES

Estimated daily average production of light and heavy gravity oil in the United States for week ended November 5, and a comparison with the previous week follows:

	Nov. 5		Oct. 29	
	Light	Heavy	Light	Heavy
Oklahoma—				
Tonkawa	16,880	.....	17,085	.....
Burbank	38,810	.....	35,805	.....
Other Osage Fields	30,540	.....	30,580	.....
Cushing and Shamrock	21,185	.....	21,235	.....
Bristow and Eastern Bristow	24,950	.....	24,815	.....
Cromwell	11,060	.....	11,220	.....
Garber	10,120	.....	10,115	.....
Blackwell-Braman	8,815	.....	8,740	.....
Seminole	404,755	.....	412,810	.....
Wewoka	12,680	.....	12,630	.....
Northern Miscellaneous	110,195	.....	110,790	.....
Southern Fields	61,480	.....	62,110	.....
Total Oklahoma	751,470	.....	757,935	.....
North Louisiana	40,770	9,165	41,705	9,170
Arkansas	22,880	76,225	23,165	76,915
North Central Texas	142,510	.....	142,007	.....
West Texas	213,606	.....	218,986	.....
Texas Panhandle	85,985	.....	88,750	.....
East Central Texas	29,634	.....	29,827	.....
Kansas	107,145	.....	105,120	.....
Total Mid-Continent Area	1,394,000	85,390	1,407,495	86,085
Gulf Coast	.....	143,323	.....	142,450
Southwest Texas	.....	28,601	.....	28,542
Eastern	114,000	.....	112,500	.....
Rocky Mountain Area	73,498	.....	75,325	.....
California—				
Santa Fe Springs	39,000	.....	39,000	.....
Long Beach	101,000	.....	100,000	.....
Torrance	3,500	17,000	3,500	17,000
Huntington Beach	60,000	.....	60,000	.....
Dominguez	15,000	.....	15,000	.....
Rosecrans	7,750	.....	7,750	.....
Inglewood	20,500	12,000	20,500	12,000
Ventura Avenue	55,000	.....	55,500	.....
Seal Beach	51,500	.....	56,000	.....
Remainder of State	55,000	186,000	55,000	186,000
Total California	408,250	215,000	412,250	215,000
Total United States	1,989,748	472,314	2,007,570	472,077
Grand Total	2,462,062		2,479,647	

Total Decrease, 17,585 Bbls.; Light Oil Decrease, 17,822 Bbls.



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Seminole Area Will Continue Decline

Highest daily average estimated production in 1926, week ended Dec. 25, 2,385,139 bbls. Lowest in 1926, January 30, 1,915,960 bbls.

Agreement to Postpone Drilling Around Recent Discoveries Aids General Situation. Increase in Output Is Temporary

By Andrew M. Rowley

Highest daily average estimated light oil production in 1926, week ended Dec. 25, 1,797,349 bbls. Lowest in 1926, Jan. 30, 1,371,600 bbls.

While the completion of three Wilcox sand wells in the greater Seminole area and outside the proven limits of pools there, during the past week, changed the general outlook in regard to that section, quick action upon the part of operators in deciding to pinch in the new wells and to hold off all drilling operations around the new producers until market conditions improve, had the effect of counteracting to a great extent any pessimism regarding the situation which was beginning to be felt. It is believed now the new wells will not wield much effect upon the general situation during the remainder of this year at least and that will be well towards next spring before any drilling campaign around the new wells will make itself felt.

The price structure is expected to be maintained because the new wells will be pinched in to 100 barrels daily and production of the greater Seminole area will continue to decline rapidly during the remainder of this year. Temporary increases in production early this week were due to shooting of wells in the area. While the area, as a whole, might show a gain in production during the current week as compared to the average of last week, such an increase is but a temporary condition and a material decline will be experienced before the end of this year.

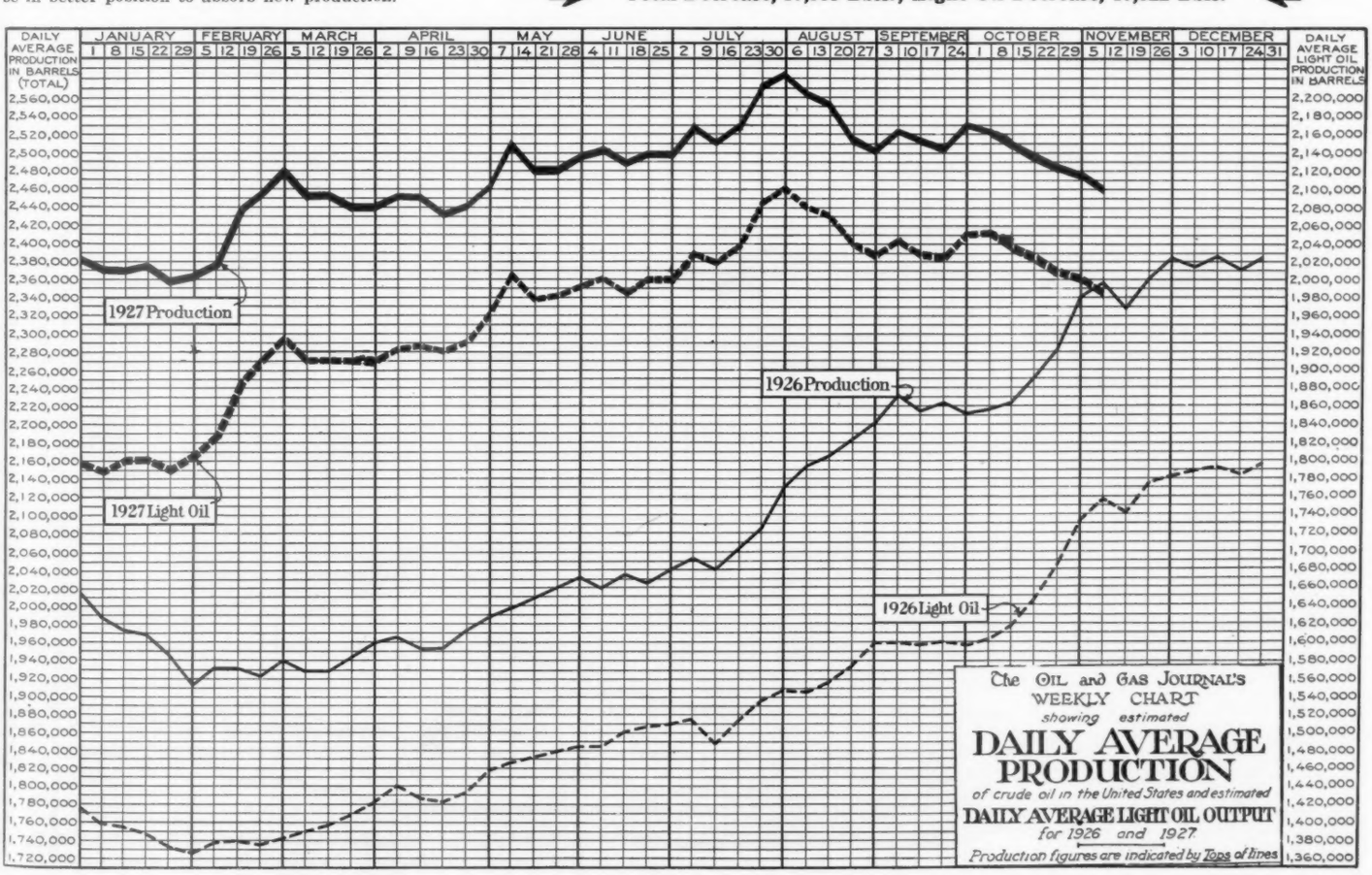
It had been expected an increase in price of light oils would be announced shortly after the first of next year. If the three wells completed in the Seminole area do open new pools when drilling around them starts, such a condition probably will postpone for a time higher crude oil prices. However, there is no way of telling now how big an area will be proved productive or what production might be expected. Consequently, the important factor now is the fact a drilling campaign has been postponed until early next year when the industry will be in better position to absorb new production.

PRODUCTION IN THE UNITED STATES

Estimated daily average production of light and heavy gravity oil in the United States for week ended November 5, and a comparison with the previous week follows:

	Nov. 5		Oct. 29	
	Light	Heavy	Light	Heavy
Oklahoma—				
Tonkawa	16,880	.....	17,085	.....
Burbank	38,810	.....	35,805	.....
Other Osage Fields	30,540	.....	30,580	.....
Cushing and Shamrock	21,185	.....	21,235	.....
Bristow and Eastern Bristow	24,950	.....	24,815	.....
Cromwell	11,060	.....	11,220	.....
Garber	10,120	.....	10,115	.....
Blackwell-Braman	8,815	.....	8,740	.....
Seminole	404,755	.....	412,810	.....
Wewoka	12,680	.....	12,630	.....
Northern Miscellaneous	110,195	.....	110,790	.....
Southern Fields	61,480	.....	62,110	.....
Total Oklahoma	751,470	.....	757,935	.....
North Louisiana	40,770	9,165	41,705	9,170
Arkansas	22,880	76,225	23,165	76,915
North Central Texas	142,510	.....	142,007	.....
West Texas	213,606	.....	218,986	.....
Texas Panhandle	85,985	.....	88,750	.....
East Central Texas	29,634	.....	28,827	.....
Kansas	107,145	.....	105,120	.....
Total Mid-Continent Area	1,394,000	85,390	1,407,495	86,085
Gulf Coast	.....	143,323	.....	142,450
Southwest Texas	.....	28,601	.....	28,542
Eastern	114,000	.....	112,500	.....
Rocky Mountain Area	73,498	.....	75,325	.....
California—				
Santa Fe Springs	39,000	.....	39,000	.....
Long Beach	101,000	.....	100,000	.....
Torrance	3,500	17,000	3,500	17,000
Huntington Beach	60,000	.....	60,000	.....
Dominguez	15,000	.....	15,000	.....
Rosecrans	7,750	.....	7,750	.....
Inglewood	20,500	12,000	20,500	12,000
Ventura Avenue	55,000	.....	55,500	.....
Seal Beach	51,500	.....	56,000	.....
Remainder of State	55,000	186,000	55,000	186,000
Total California	408,250	215,000	412,250	215,000
Total United States	1,989,748	472,314	2,007,570	472,077
Grand Total	2,462,062		2,479,647	

Total Decrease, 17,585 Bbls.; Light Oil Decrease, 17,822 Bbls.



Less Optimism in Refined Oil Market

Possible Increase in Crude Oil Production Due to Seminole Extension Reflected in Oklahoma Refinery Prices

By W. T. Ziegenhain

Over the week, the Oklahoma refined oil market has remained practically unchanged, but refiners are less optimistic about the future than a week ago, due largely to the extensions of the Seminole Field. Gasoline has witnessed a consistent movement and the volume has been well up to expectations at this time of the year. Excellent weather throughout the greater share of the Group 3 marketing area has been a contributing factor in this and with the coming of freezing temperatures over the past few days, a falling off in the number of orders may result over the next few days. Many jobbers have been buying from hand to mouth, expecting a change in the retail price structure and this in turn has made the gasoline movement vary sharply with the change of weather. There was a considerable volume of 375 and 400 endpoint gasolines moved and as refiners are revising their operations to make a greater proportion of these, the U. S. Motor production is of course decreased and this has given a little more strength to the U. S. Motor quotations.

Kerosene continues to weaken as production continues high with no material moving out of the normal trade territory to stimulate the market. Distillates again appeared very weak. The effect of the warm weather throughout the north is apparent in the sales of this product also.

Natural gasoline developed additional weakness, with slightly lower quotations being posted on the A and AA grades. Lack of export buying has occasioned this weakness. Some large export business is expected to develop soon as a result of inquiries for material from export buyers and quotations have been given out on several lots but the delay in closing the business is making the general market heavy. This factor, together with the cooler weather and accompanying increased production has made relatively large volumes of the material available.

Fuel oils and gas oil remained weak with the small buyers insisting on low cold test material. Shipments of Panhandle fuel had weakened the Oklahoma market on the heavier grades. As many of the industries are equipped to use the higher cold test Panhandle oil, price remains the major consideration in purchases. Gas oil remained weak along with the uncertainty of the gasoline market for cracking operations are just being maintained with no effort made to push the runs. The small volume of gas oil that has been going out as furnace oil ceased to support the general gas oil market as orders for this material fell off.

Lubricants moved out fairly well but their position was little changed from that of last week. Compounded oils were in greater demand than neutrals and the lighter grades moved in greater volume than the heavier grades, which could be expected, as some marketers adopt lighter oils for winter use. Bright stock was readily available at the lower quotation and further weakness threatens to force prices fractionally lower. Cylinder stock remains at relatively high prices and is in fair demand, particularly the treated grade.

Less Optimism

Much of the optimism that was shown by sales managers last week was not apparent this week. The bringing in of new wells in the Seminole area, extending the present field for several miles possibly or establishing a new pool, casts a shadow of doubt as to whether Seminole has been defined. As production declined over the past month, with some consideration

(Continued on Page 145)

REFINED MARKET BAROMETER

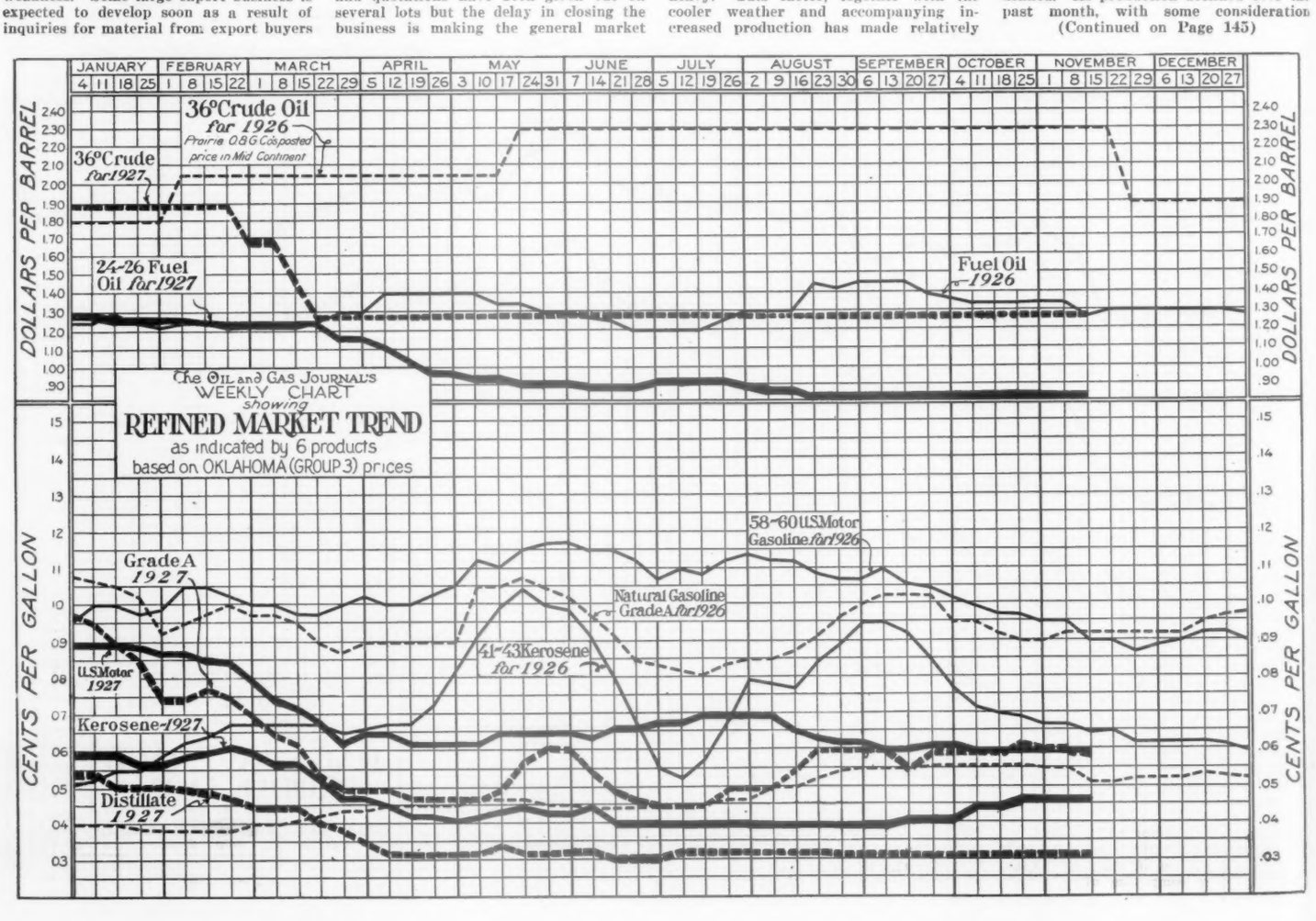
Only slight price changes occurred in the general refined oil market in the United States over the past week, but these changes in most cases reflected a further weakening. As new wells were brought in in the Seminole area and shipments of west Texas crude to the eastern coast increased, there was less confidence shown in the general market. Gasoline remained plentiful in all sections and large quantities of the material continue to be moved from the Gulf Coast and California to the Atlantic Coast. Kerosene exports continued at a fair rate, but the supply was more than adequate. Natural gasoline was weaker in the Mid-Continent through the lack of export orders, but remained unchanged in California. Distillates were moving slowly considering the period of the year. Fuel oil is available in large quantities from practically all refinery centers, and where the sales territories overlap competition is forcing added concessions. Gas oil remains unchanged as refiners limit their cracking operations. Lubricants and wax are moving slowly at last week's prices.

Mid-Continent—Gasoline prices remained unchanged, with most inquiries for the lower endpoint material. Natural gasoline was noticeably weaker, especially the A and AA grades. Kerosene quotations remained the same, but there was a tendency to increase the number of sales at the low of the price range. Distillates moved slowly. Fuel oil and gas oil continued very weak as great quantities of the lower gravity material was offered out of the Panhandle and Oklahoma. Lubricants and wax remained unchanged.

Atlantic Seaboard—West Texas crude made its entry on a large scale into this territory and dispelled the optimistic feeling occasioned by the decline of the Seminole Field. Prices in general remained unchanged, but the gasoline market remained heavy as added material was received from the Gulf Coast and California. Other products show the same weakness, but prices remain unchanged.

Chicago—The general market remained quiet with prices unchanged. Fuel oil was plentiful as material was being supplied from many points.

California—Added weakness in the gasoline market was indicated by the lower export price posted during the week. Kerosene witnessed a good demand. The situation with respect to other products remained unchanged.



Meeting Sulphur Oil and Gas Problems

Processes Devised for Removing Corrosive Effects of Oil in Refineries and of Fatal Character of Gas in Fields

Any refinery can be equipped at small cost to handle west Texas crude economically, according to Dr. E. R. Lederer, vice president in charge of refining for the Texas Pacific Coal & Oil Co. The problem of purifying the poisonous sulphur gas from that region also seems to have been met.

The process for neutralizing the corrosive effects of the sulphur content in the oils from that district is no secret, he says, although there seems to be a widespread belief that it is. Humble Oil & Refining Co. is using it with success on west Texas crude, Roxana Petroleum Corp. on Panhandle oil, and several other refiners are handling these crudes satisfactorily.

Every type of oil presents its own particular problems which have to be solved individually, but Doctor Lederer has been operating a plant using sulphurous oils for more than eight months, during which time he has not had a fatality due to poisonous gases nor a shutdown due to corrosion of equipment.

The cost of treating the crude amounts to approximately 2 cents per barrel in the pipe stills, and from 2 cents to 5 cents per barrel in the cracking units.

The original cost of the equipment was not in excess of $500.

Method Simple

The method is simple. Vapors from the crude stills are treated with aqua ammonia in the proper percentage, which has to be determined in the laboratory for the particular oil to be treated.

If the crude is run in shell stills, it is run over a caustic soda solution the same as naphthene base crudes. The caustic solution flows into the stills by gravity with the crude, the amount being regulated by a float or other device.

Cracking stock, or topped crude, is mixed with caustic soda solution through small chemical pumps connected with the charging pumps, and the mixture is pumped into the tubes. The vapors are also mixed with ammonia, either aqueous or anhydrous, in dephlegmators or bubble towers.

Where special alloy tubes are used in tubular condensers these tubes can be protected from the effect of the ammonia by a splash plate situated opposite the entrance of the vapors, and by circulation of sufficient water to dilute the ammonia.

The aqua ammonia is used in 800-pound drums at the Wynnewood, Okla., plant of the Texas Pacific Coal & Oil Co. One of these drums is placed on a steel support so that the ammonia flows by gravity through a small line into a blow case, which is under 2 or 3 pounds air pressure. The liquid is blown through another small line to an elevated tank, and a line from this tank leads into the 10-inch vapor line from the pipe still just before it enters the bubble tower.

Gas Made Harmless

Hydrogen sulphide gas of the west Texas region, which is extremely poisonous, has been made so innocuous by a purification plant erected by the Gulf Production Co. on its McElroy lease in Crane County that it not only is being used to operate the lease but to provide fuel in company houses. The purification process apparently solves also the problem of corrosion, which had become a serious one in the west Texas fields where this poisonous gas appears.

The Koppers Co. of Pittsburgh designed and erected the initial plant now in operation on the Gulf Production Co.'s lease. Even the men operating the plant, it is said, do not know how the sulphur content is extracted.

The deadly character of the sulphur gas has led to the adoption of electricity as the motive power in the west Texas territory, many companies after trying out both pumping and the air-lift having discarded this equipment and electrified their leases, with the disposal of the sulphur gas still a problem.

The chief danger attending the use of the gas produced in the Panhandle, McCamey, Winkler, Crane and Yates Fields has been the one to human life, the problem of corrosion having been met in large part by replacing all brass and bronze fittings with cast iron. Valves, seats, plungers and liners had to be replaced on separators used by the Gulf company, but cast iron seems to be little affected by the sulphurous gas. In fact, some tests are reported to have shown no more corrosion than with ordinary gas in other fields. Men working on the leases, not only around boilers and engines using gas for fuel, but in their homes, were confronted by the menace of poison gas.

Risk Is Great

This gas is so bad that the Gulf Production Co. regards cleaning out a tank as involving too great a risk for men to take and if a tank has to be cleaned it is cut down. Even the blower type of gas mask is not regarded as sufficient protection. One man alone does not even approach a tank for gauging or other purposes, but always has a guard to come to his rescue in case his mask fails.

On damp nights the low places are filled with this gas and it is a fact that several cars have been burned up while attempting to pass through such places. Many mules, rabbits and even birds have been killed. Inhalation of hydrogen sulphide gas, such as encountered in a pocket, is fatal.

The Koppers Co. has several of these purification plants in the East. Each plant is designed for a specified capacity and provision is made for increase of the capacity by adding new units. The efficiency of the plant in operation on the McElroy lease in Crane County is reported to be better than 90 per cent.

In the region where the poison gas is produced, particularly in Crane County, operators tried various means of producing oil, including pumping with 4-cylinder engines and the gas lift, but all proved unsatisfactory at first, for the gas soon ruined any type of engine that had brass or bronze fittings, seats, valves, plungers, etc. Pistons and piston rings became brittle after running a week or 10 days.

At the present time virtually all drilling wells in Crane County if not electrified, are using gasoline or kerosene as fuel. The Gulf Production Co., however, is able to use the gas with its sulphur content eliminated.

Gas from Three Wells Used

The purification plant of the Gulf company cost approximately $75,000. The company, which operates about 40 producing wells, is taking the gas from three wells and after subjecting it to the purifying process is using it to operate the lease, besides providing fuel for the homes of its workmen, with the former danger to life and property removed.

The company handles 500,000 feet of gas a day, which is sufficient to operate gas engines for pumping and swabbing, also one large flowing station.

As shown in the accompanying photograph, the highest tower of the purification plant is a stack to carry away the fumes. The two others are the absorber and the actifier.

The two vats are full of a brine containing iron oxide, which is pumped into the absorber and broken up by a series of wooden baffles from there to the actifier, which also contains baffles. By means of two large fans the gas is blown from the actifier to the discharge line, the sulphur remaining on the baffles. The gas is delivered to the lease 90 per cent

(Continued on Page 148)

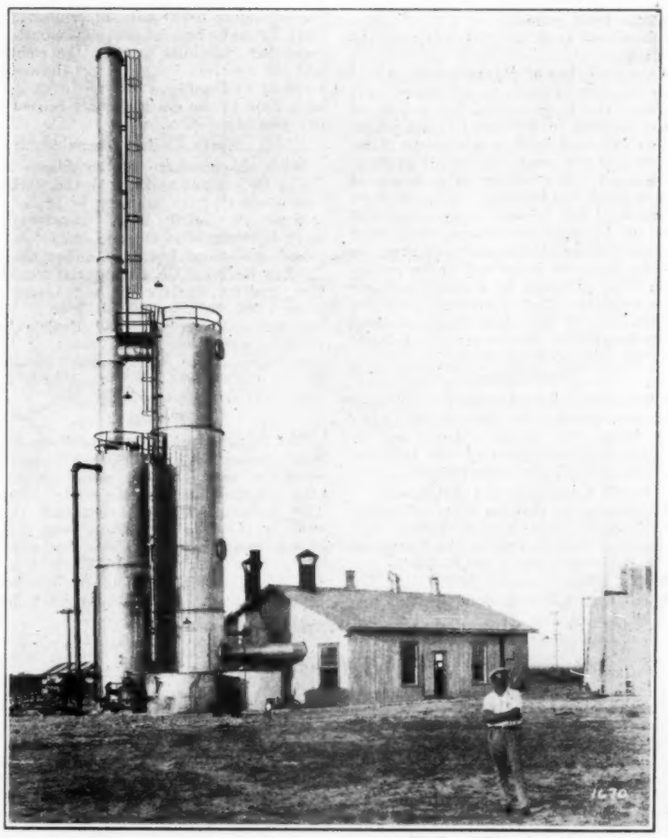
New Department Is Inaugurated For the Benefit of Oil Field Men

For the benefit of all field men connected with the drilling, production and pipe line branches of the petroleum industry, The Oil and Gas Journal, on page 62 of this issue, has inaugurated a special department for the consideration of problems and matters pertaining to the production and transportation of crude oil. Such rapid strides have been made recently in new methods and practices employed in drilling wells, bringing the oil to the surface, transporting this oil and caring for it in storage, this department has been started by The Oil and Gas Journal to give every man connected with the producing and transporting branches of the industry an opportunity to obtain specific information regarding problems and difficulties he encounters in his work.

So many inquiries are received weekly by The Oil and Gas Journal from field men regarding problems confronting them, it was felt the answers to these questions would be of general interest. Consequently, instead of writing personal letters to these field men, it was decided to publish the questions and answers that all might benefit.

Arrangements have been made by The Oil and Gas Journal with nationally known engineers, production and pipe line men whereby these men will supply the information for the answers to the questions. Consequently, answers to questions submitted will represent the result of experience, research and the best thought on the problems involved.

Every one should feel entirely free to use this department to the utmost as The Oil and Gas Journal believes men in the field will be benefited greatly by this interchange of ideas and by learning of the problems of others in the same work and of the solutions offered.



Gas purification plant of Gulf Production Co. in West Texas.

Mid-Continent Refinery Runs Higher

Greater Part of Small Increase From North Texas Refineries. Fewer Plants Operating Than Year Ago

By W. T. Ziegenhain

Slightly higher crude runs in the Mid-Continent during November has followed the somewhat more encouraging market situation, but this addition in crude runs compared to last month, is small and has been brought about by increases in a few plants rather than a general increase. In fact, the general tendency is for refiners to decrease runs as the lesser demand for gasoline is felt with the coming of the winter season. The curtailment of cracking operations is also noticeable as the demand for gasoline falls off.

The increase of 5,890 bbls. daily is principally due to increased runs of Kansas refineries. The Kansas increase of 5,800 bbls. more than overcomes the decrease of 2,530 shown in Oklahoma and decrease of 2,900 in northern Louisiana. The North Central Texas runs also show an increase amounting to 4,350 bbls. while the Arkansas runs increased 970. This is the first month the Arkansas runs have shown an increase for a long period.

Compared to a year ago, the present total runs are 9,070 bbls. higher. This increase has been well divided among the various refinery centers in proportion to the total refining capacities, the gain in Oklahoma runs amounting to 5,875 bbls., North Central Texas, 7,525 bbls.; Kansas, 5,950 bbls. North Louisiana decreased 6,700 bbls., and Arkansas 3,580 bbls.

Despite the increase in crude oil runs to stills, there are now fewer plants in the Mid-Continent than there were a year ago. One year ago there were 125 refineries in the Mid-Continent including all plants in operation during the previous year, while at present there are but 119 in the Mid-Continent area. Also, of this number 111 were operating a year ago with only 103 plants now running crude. Yet, the total capacity of all refineries has increased from 641,400 bbls. to 665,050 bbls.

As the number of plants decreases and their capacity is made up by others, particularly the larger units, the period of closer margins in refining is emphasized. Unless the most modern equipment is installed and the most economical processing carried out a refiner is soon placed at a decided disadvantage. Furthermore, as cracking has become a more essential part of refinery operations, the many small skimming plants, scattered over the refining territory have had to depend on some local situation to make their operation possible. But at present the effect of cracking is felt less than at most times because of the cheapness of crude and the low price on gasoline.

Oklahoma

Crude runs showed very little change over the month, the decrease of 2,530 bbls. being due almost entirely to the complete shutting down of the Imperial Refining Co.'s plant at Ardmore.

North Louisiana and Arkansas

Practically no changes occurred in the operations in this section except that crude runs were lowered at the Louisiana Oil & Refining Corp. from 18,500 to 15,000 bbls. The Lion Oil & Refining Co. is repairing the damage done to the cracking units during the fire last month and are skimming 6,000 bbls. of crude. The final crude schedule for the month is somewhat indefinite pending the completion of repairs. The Root Refinery's plant at El Dorado is also repairing damages done to the cracking unit caused by fire recently.

North Central Texas

With the purchase of the Alamo Refining Co.'s plant at Isom by the Phillips Petroleum Co., its capacity is to be increased to 7,500 bbls.. Construction work is expected to start at once. Additional equipment has been added to the Col-Tex Refining Co.'s plant at Colorado, Tex., and its capacity has been increased from 7,500 bbls. to 10,000 bbls. The Primtex refinery at Grand Prairie has resumed operations on a basis of 350 bbls. daily. The Star Refining & Producing Co.'s plant at Fort Worth has been shut down temporarily.

Kansas

The Kanotex refinery at Arkansas City has increased its runs to 5,000 bbls. after curtailing runs over last month to facilitate making changes to the crude battery. The Standard Oil Co. increased their runs at the Neodesha plant from 7,500 bbls. last month to 9,000 bbls. this month, while runs at the White Eagle Oil & Refining Co.'s plant at Augusta have been decreased from 7,000 bbls. to 5,500 bbls.

RUNS TO STILLS IN MID-CONTINENT REFINERIES

	Bbls. Daily
1925	
May 1	398,940
June 1	423,950
July 1	440,350
August 1	427,382
September 1	407,690
October 1	415,575
November 1	383,225
December 1	375,979
1926	
January 1	397,200
February 1	385,845
March 1	365,990
April 1	368,210
May 1	391,355
June 1	415,450
July 1	410,070
August 1	407,475
September 1	419,995
October 1	408,975
November 1	417,575
December 1	403,450
1927	
January 1	403,625
February 1	418,595
March 1	418,920
April 1	401,870
May 1	407,355
June 1	423,170
July 1	428,075
August 1	457,800
September 1	422,150
October 1	420,955
November 1	426,645

MID-CONTINENT REFINERY OPERATIONS

TABLE NO. 1

(Based on operations, November 1, 1927 and October 1, 1927)

	*No. of Plants Nov. 1	Crude Cap'y Bbls.	Crack Cap'y Bbls.	Plants Oper'g Nov. 1	Runs to Stills Nov. 1	Plants Oper'g Oct. 1	Runs to Stills Oct. 1	Daily Inc. Nov. 1
Oklahoma	47	274,900	80,100	42	183,125	43	185,655	†2,530
N. C. Texas	39	179,050	43,800	34	99,950	33	95,600	4,350
‡Kansas	20	133,500	61,600	16	89,900	16	84,100	5,800
No. La.	4	44,300	19,300	4	35,400	4	38,300	†2,900
Arkansas	9	33,300	30,300	7	18,270	7	17,300	970
Total	119	665,050	235,100	103	426,645	103	420,955	5,890

*Does not include plants shut down one year or more.
†Decrease.
‡Includes two Missouri plants.

TABLE NO. 2

(Based on operation, November 1, 1927 and November 1, 1926)

	*No. of Plants Nov.1 1926	Crude Capacity Nov. 1 1926	Plants Operating Nov. 1 1926	Runs to Stills Nov. 1 1926	Daily Inc. Nov.1 1927
Oklahoma	51	263,500	47	177,250	5,875
North Central Texas	40	172,900	34	92,425	7,525
‡Kansas	19	123,000	18	83,950	5,950
North Louisiana	5	50,000	4	42,100	†6,700
Arkansas	10	32,000	8	21,850	†3,580
To al	125	641,400	111	417,575	9,070

†Decrease.
*Does not include plants shut down one year or more.
‡Includes one Missouri plant.

REFINERY OPERATIONS IN OKLAHOMA

(Plants which have been in operation during the past year.)

Name and Location—	Daily Capacity	Runs Nov. 1	Runs Oct. 1
Anderson-Prichard Oil Corp., Cyril	2,500	1,800	1,750
Barnsdall Refineries, Inc., Barnsdall	6,000	3,000	3,500
Barnsdall Refineries, Inc., Okmulgee	10,000	6,500	5,500
Bell Oil & Gas Co., Grandfield	4,500	2,000	2,000
Bolene Refining Co., Enid	5,000	3,000	3,200
Cameron Refining Co., Ardmore	4,000	3,600	3,100
Canfield Refining Co., Yale	400	75	75
Champlin Refining Co., Enid	16,000	11,500	11,500
Continental Oil Co., Sapulpa	10,000	2,500	2,500
Cushing Refining & Gasoline Co., Blackwell	1,500	1,000	1,000
Cushing Refining & Gasoline Co., Cushing	3,500	1,500	2,100
Empire Oil & Refining Co., Cushing	5,000	4,700	4,700
Empire Oil & Refining Co., Okmulgee	3,000	3,000	3,000
Empire Oil & Refining Co., Ponca City	7,500	7,500	7,500
Garber Refineries, Inc., Garber	3,500	3,300	3,200
Gilmer Oil Co., Ringling	1,500	Shut down	Shut down
Globe Oil & Refining Co., Blackwell	5,000	5,000	5,000
Illinois Oil Co., Cushing	3,000	2,000	2,500
Imperial Refining Co., Ardmore	5,000	Shut down	1,500
Independent Oil & Gas Co., Okmulgee	4,000	2,700	2,700
Interocean Refining Co., Bristow	4,000	900	900
Johnson Oil Refining Co., Cleveland	6,000	5,500	5,500
Marland Refining Co., Ponca City	28,000	18,000	18,000
Mid-Continent Petroleum Corp., West Tulsa	40,000	25,000	25,000
Oil State Refining Co., Enid	2,000	Shut down	Shut down
Oil State Refining Co., Allen	800	500	500
Peppers Gasoline Co., Covington	1,000	700	780
Pierce Oil Corp., Sand Springs	12,000	6,400	7,000
Producers Oil Co., Bristow	2,500	Shut down	Shut down
Producers & Refiners Corp., West Tulsa	6,000	3,800	3,500
Pure Oil Co., Ardmore	5,000	2,000	2,000
Pure Oil Co., Muskogee	8,000	7,000	7,000
Riley Petroleum Co., Bristow	1,000	300	300
Rock Island Refining & Pipe Line Co., Duncan	2,500	1,400	1,200
Savre Oil & Refining Co., Sayre	500	Shut down	Shut down
Shaffer Oil & Refining Co., Cushing	10,000	10,000	10,000
Sun Oil Co., Yale	4,500	4,500	4,500
Sinclair Refining Co., Muskogee	1,000	800	800
The Texas Company, West Tulsa	12,000	12,000	12,000
Texas Pacific Coal & Oil Co., Wynnewood	2,500	1,600	1,600
Tidal Refining Co., Drumright	10,000	8,500	9,000
Transcontinental Oil Co., Boynton	2,500	1,500	1,500
Transcontinental Oil Co., Bristow	5,000	3,500	3,500
Tonkawa Petroleum Co., Tonkawa	2,500	750	750
Western Oil Corp., Beckett	2,000	1,000	1,000
White Oak Refining Co., Allen	2,000	1,800	2,000
Yale Oil Corp., Yale	1,500	1,000	1,000
Total	274,900	183,125	185,655

REFINERY OPERATIONS IN NORTH LOUISIANA

(Plants which have been in operation during the past year.)

Name and Location—	Daily Capacity	Runs Nov. 1	Runs Oct. 1
Crystal Oil Refining Corp., Shreveport	13,000	9,000	9,000
Louisiana Oil Refining Corp., Shreveport, Bossier	20,000	15,000	18,500
Shrevenort Producing & Refining Co., Shreveport	5,500	5,800	5,200
*The Texas Company, Shreveport	5,800	5,600	5,600
Total	44,300	35,400	38,300

*Topping.

REFINERY OPERATIONS IN ARKANSAS

(Plants which have been in operation during the past year.)

Name and Location—	Daily Capacity	Runs Nov. 1	Runs Oct. 1
Henry H. Cross Co., Smackover	4,000	3,900	4,000
Houston Oil Co., Camden	3,000	Shut down	Shut down
Kettle Creek Refining Co., Pearson	6,000	2,000	2,600
Lion Oil & Refining Co., El Dorado	12,000	6,000	6,500
Newark Refining Co., El Dorado	1,800	500	500
Ouachita Valley Refining Co., El Dorado	1,000	970	800
Root Refineries, El Dorado	2,500	3,300	2,000
Simms Oil Co., Smackover	1,000	1,600	900
E. M. Tulle, El Dorado	1,000	Shut down	Shut down
Total	33,300	18,270	17,300

REFINERY OPERATIONS IN KANSAS

(Plants which have been in operation during the past year.)

Name and Location—	Daily Capacity	Runs Nov. 1	Runs Oct. 1
Arkansas City Refining Co., Arkansas City	8,000	Shut down	Shut down
*Barnsdall Refineries, Inc., Wichita	5,000	3,000	3,800
Derby Oil Co., Wichita	5,000	3,500	3,800
Derby Oil Co., Russell	2,500	Shut down	Shut down
Eldorado Refining Co., Eldorado	3,500	2,200	2,000
Golden Rule Refining Co., Wichita	1,000	800	800
Kanotex Refining Co., Arkansas City	10,000	5,000	2,500
Manhattan Oil Co., Kansas City	7,000	5,000	4,500
Miller Petroleum Co., Humboldt	2,000	Shut down	Shut down
National Refining Co., Coffeyville	6,500	6,500	6,400
Peerless Oil Refining Co., Chanute	3,000	2,500	2,000
Roxana Petroleum Corp., Arkansas City	20,000	16,500	16,500
Sinclair Refining Co., Coffeyville	10,000	9,500	9,500
Sinclair Refining Co., Argentine	8,000	8,000	8,000
Skelly Oil Co., Eldorado	15,000	10,000	10,500
Standard Oil Co. of Kansas, Neodesha	12,000	9,000	7,500
Vickers Petroleum Co., Potwin	3,500	1,900	1,900
White Eagle Oil & Refining Co., Augusta	8,000	5,500	7,000
West Missouri Group—			
Alliance Rubber Producing Co., Centropolis	2,000	Shut down	Shut down
Wilhoit Refining Co., Joplin	1,500	1,000	1,200
Total	133,500	89,900	84,100

*No crude run. Only cracking stills operating.

(Continued on Page 151)

New Field Opened at Seacliff, Calif.

Pan American Completes Well Making 1,000 Bbls. 28.9 Gravity Crude. Second Pool in Three Weeks and Fourth This Year

By L. P. Stockman

California, which has established a number of remarkable records in oil field discovery work during the past several years, can now lay claim to another outstanding achievement—that of opening up two new fields in widely separated areas within three weeks of each other. Seacliff, California's newest oil field, is the fourth wildcat area to be proven productive during the current year to date, and with nearly two months yet to go before the close of 1927 it is within the realms of possibility that another field may be added before 1928 rolls around. The Miley Exploration Co. started the year with a new field at Goleta in Santa Barbara County during the early part of February and this shallow district yields the highest gravity oil found anywhere in the state. Three months later the Elbe Oil Co., under the personal direction of L. S. Barnes, surprised many of the boys by finishing a commercial producer in what is now the Round Mountain Field located in Kern County about 15 miles north of Bakersfield and something like 10 miles east of Mount Poso, which had been opened up by the Shell in August, 1926. The Associated Oil Co. then focused the spotlight on the Los Angeles Basin by bringing in No. 1 Cypress, the discovery well at Petrero, which began flowing to sump at the rate of approximately 200 bbls. of 39.5 gravity oil daily on October 15, last, after a voluntary suspension since November, 1926, at which time drilling operations were stopped because of the unsettled conditions existing within the industry. This brings us up to the advent of the newly discovered field in the Seacliff-Rincon area located 6 or 7 miles west of the prolific Ventura Avenue Field.

Former Test Not Deep Enough

The Pan American technically finished the first commercial producer at Seacliff by bringing in No. 1 State flowing approximately 1,000 bbls. of 28.9 gravity oil daily from 3,220 feet, although the Chanslor-Canfield Midway Oil Co. really pioneered this area after practically every other major concern in the state had turned it down. The General Petroleum gave this section a test and drilled a wildcat right on the axis of the Seacliff anticline less than a mile east of the Pan American's discovery but drilling was discontinued at 1,273 feet. This was a really tough break for had the company gone down another 1,000 feet it would have opened up this new field. The General Petroleum drilled another wildcat up in Padre Juan Canyon about 2 miles further east but again the old rabbit's foot was missing as the hole was abandoned at 3,229 feet. No. 1-A Hobson of the Chanslor-Canfield Midway Oil Co., the first test to actually find oil sand in this area, is incidentally only a few hundred feet away from this location. It must be remembered of course that when the General Petroleum undertook this work the area did not look as good as it does today. The Chanslor-Canfield Midway Oil Co. subsequently looked over the Seacliff area and after a very minute survey came to the conclusion that it looked exceptionally promising. The result was that this concern tied up every acre of potential oil land available and went right to work. Two tests were drilled, one on Hobson Lease-A and another on Hobson Lease-B. No. 1-A Hobson, located in the extreme eastern part of the field, cored a good sand and the showing of this test resulted in the starting of No. 1-B Hobson a little less than 2 miles to the west. This well also hit the pay and both would have probably been on production several months ago if mechanical trouble had not developed at the last moment. Recent reports indicate that No. 1-A Hobson is in the oil sand at 7,002 feet while No. 1-B Hobson is in the pay sand at 5,738 feet.

Wildcatting Hazardous

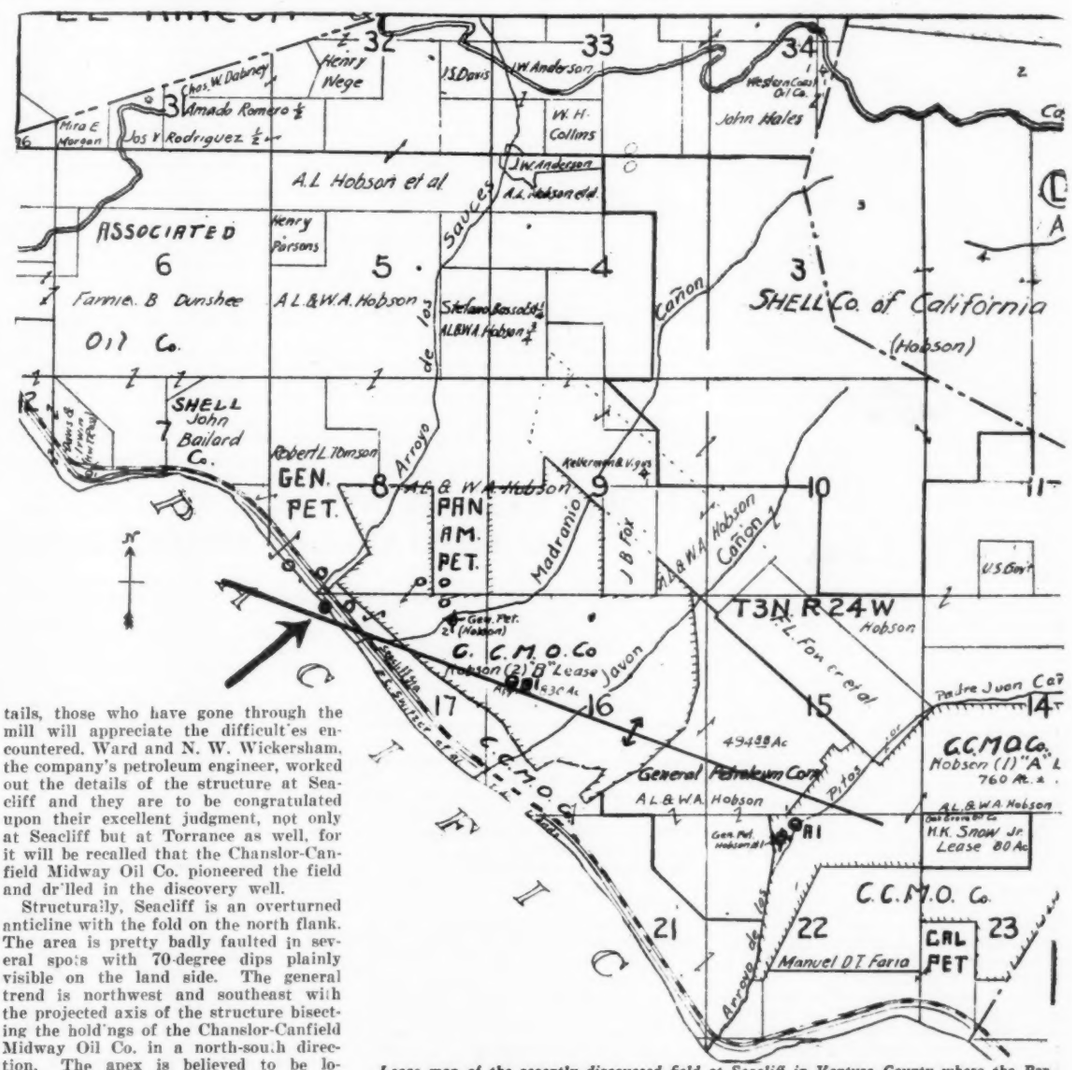
Wildcatting work is probably one of the most interesting and fascinating phases of the oil industry, although this type of work is full of grief. The human equation is probably the most important factor in all prospecting work and with the present high wildcat mortality the geological staff and field departments of companies opening up new fields should receive due recognition although this angle is lost sight of in many instances. With all due credit to the Pan American's achievement in actually opening up the Seacliff area, the writer cannot but be impressed by the persistent effort which marked the wildcat activities of the Chanslor-Canfield Midway Oil Co. in this section and the tenacity of purpose shown. As a personal mention I should like to call attention to the work done by Ward Blodget, assistant general manager of the latter company, and, while not at liberty to disclose the inside details, those who have gone through the mill will appreciate the difficulties encountered. Ward and N. W. Wickersham, the company's petroleum engineer, worked out the details of the structure at Seacliff and they are to be congratulated upon their excellent judgment, not only at Seacliff but at Torrance as well, for it will be recalled that the Chanslor-Canfield Midway Oil Co. pioneered the field and drilled in the discovery well.

Structurally, Seacliff is an overturned anticline with the fold on the north flank. The area is pretty badly faulted in several spots with 70-degree dips plainly visible on the land side. The general trend is northwest and southeast with the projected axis of the structure bisecting the holdings of the Chanslor-Canfield Midway Oil Co. in a north-south direction. The apex is believed to be located a little east of the Pan American's No. 1 State and for this reason it is logical to assume that a portion of the productive acreage is located out in the open ocean. This is very obvious particularly in view of the fact that the discovery well is located on the beach just inside the tide line. The Pan American's new well has not yet been put on steady production and hence its maximum potential has not been definitely determined. It came in rather prematurely and flowed for a short time at the rate of about 300 bbls. daily before it was killed. Yesterday it made 1,100 bbls. of 29.3 gravity oil which showed a cut of a little less than 10 per cent. Drilling work was concluded at 3,220 feet after going through 400 feet of oil sand and a string of 13⅝-inch casing landed at 2,782 feet. The hole was then filled up with heavy mud to 2,796 feet and a 10-foot cement plug put in on top of this. The cement was later drilled out to 2,786 feet leaving 4 feet of hole between the top of the plug and the shoe of the water string at 2,782 feet. The showing which this 4-foot sand made is probably the best evidence of what may be expected at Seacliff and in spite of the fact that the discovery well has not shown any heavy gas pressure there is a good chance that this field may prove highly productive, although there is no evidence to indicate that it will be in any way comparable to Ventura Avenue except that the oil in each area is somewhat comparable.

Locating Offsets

The Chanslor-Canfield Midway Oil Co. has located two direct offsets to the Pan American's discovery well and the General Petroleum, which has acreage adjoining the state property on the west and north, has also flagged two direct offsets. The Pan American will next swing northeast of the state property where the company has another lease aggregating 80 acres upon which a test will be drilled within the next 30 days. The Chanslor-Canfield Midway will be obliged to offset this new location with two more holes. The Shell has not yet made a location on the Bailard lease west of the General Petroleum's Thompson property but should do so within the next 10 days. The Associated will also start drilling shortly on the Dunshee ranch as lease requirements call for early work. At least 10 wells should be under way within the next 30 days and this field may be doing anywhere from 5,000 to 10,000 bbls. per day shortly after the first of the year depending of course upon

(Continued on Page 82)



Lease map of the recently discovered field at Seacliff in Ventura County where the Pan American brought in a 1,000-bbl. well producing 28.9 gravity oil.

Eastern Burbank Production Trend

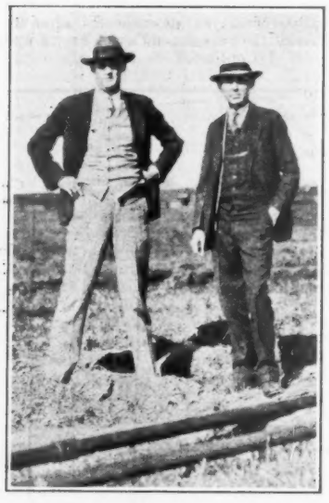
New Conditions Found in Narrow Strip Extending Along Side of Big Field. Extent of Area Not Fully Determined

By J. L. Dwyer

The Burbank Field of Osage County, Oklahoma, has been rather inactive for over one year, but the completion of good wells on the east side of the pool has revived the interest which was formerly manifested in this highly productive region.

Considering the position, and production of the recent completions, considerable speculation has arisen regarding the future of the east side of the field, and the question naturally arises, are the new wells forerunners of another field similar to Burbank, or are they merely spots rich in the accumulation of petroleum, possibly caused by lenticular sand conditions.

When the eastern limits of the Burbank Field were thought to have been delineated many months ago, the wells on this side ran completely out of sand, many of them missing the Bartlesville formation entirely. This condition differs greatly from the west side of the Burbank production, where the failures find a hole full of water in the bottom of the Bartlesville. The majority of



L. G. Stanley, of the Prairie Pipe Line Co., and A. G. Oliphant, the discoverer of the Burbank trend.

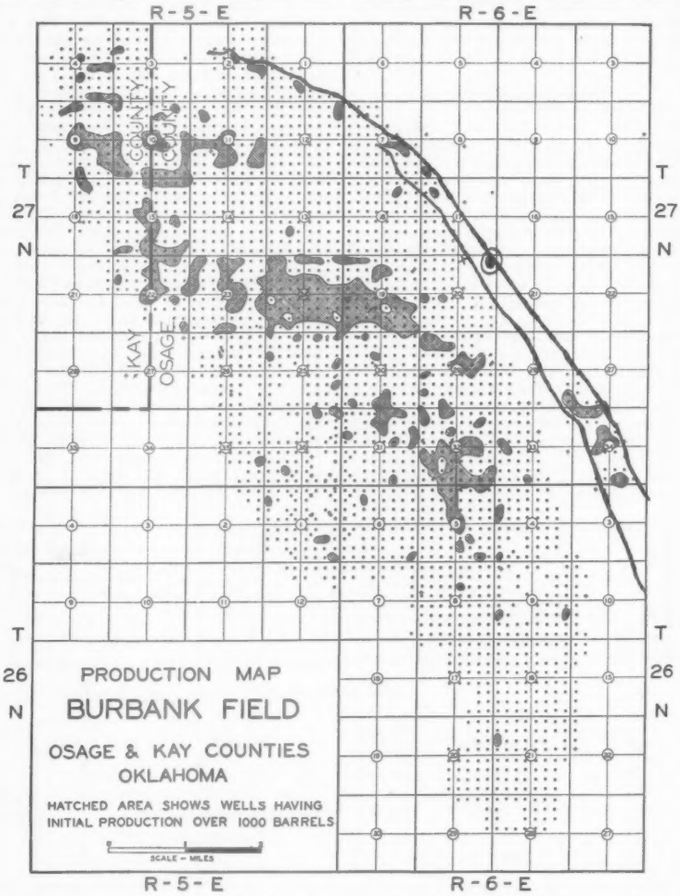
failures on the east flank of the Burbank structure, were as dry as "the covered wagon," and can really be termed "dusters" in the most accurate sense of the word.

May Be Productive Strip

Some time ago, the Kewanee Oil & Gas Co. found what constituted the first important strike on the east side of the field in Section 34-27-6. This company owned the oil and gas lease upon the entire section. A cautious drilling activity gradually revealed that the production was to be confined to a strip a half mile wide, running northwest and southeast. At the time of discovery, this area was considered a lucky strike, with little or no bearing upon any of the remaining region.

About 60 days ago George Parker and others drilled in a good well in the NE, Section 11-26 6, and last week, the completion of the well of A. G. Oliphant and others in the NE cor. NE, Section 20-27-6, has given some credence to the trend theory for the production of these three different pools. Burbank seems to have a golden lane of its own.

Mr. Oliphant, who is a geologist, has given this part of Osage County an intensive study, and along with others has formed the trend theory for the development of the territory included between the heavy lines running upon the accompanying map. An interesting sidelight in this connection is that a pipe line official has also given much study to the same theory, and to L. G. Stanley, in charge of the Prairie Pipe Line Co.'s operations in the entire Osage nation, is given credit jointly with Mr. Oliphant for working out the trend theory. Mr. Stanley has assumed an unusual interest in oil production, and his trend map worked out some time ago, is substantiated by the completion of many good wells, and his limits are clearly defined by the many failures which have been discovered on this side of Burbank.



The Oliphant well is flowing 155 bbls. per hour, and has maintained that rate of output since discovery. It is the second best well of natural flow in the Burbank Field, the only well having a greater natural initial output being the Gypsy Oil Co.'s No. 1, SE cor. SE, Section 24-27-5, which at one time produced 7,000 bbls. per day. The Oliphant well found the regular Burbank sand 2,897-2,900 feet. The current rate of flow is rather unusual for 3 feet in the sand, and if this well is found to have the average Burbank body of Bartlesville (60 feet) much may be anticipated from its output.

The location of the three pools named above, Kewanee, Parker, and Oliphant will be observed to be within the lines marking the trend theory on the accompanying map.

Wall of Shale Between

Inspecting the region to the immediate west of the trend, one notices an open territory, untested by the drill. The reason for this area being untested, is that the wells on the extreme east edge of the field proper, have uncovered the spots where the sand begins to pinch out, and many of them are very small producers. Between them and the present site of activity in the trend, is an impervious wall of shale best described in "Burbank Field, Osage County, Oklahoma." (J. Melville Sands, in the bulletin of the American Association of Petroleum Geologists, October, 1927). This wall of impervious shale will serve to protect the trend area from the danger of drainage by the wells in the main pool.

An added interest to the producing fraternity is seen in the fact that several unleased tracts are direct offsets to the wells recently completed, and for this reason, a public sale of oil and gas leases is scheduled for December 12, by the Government.

Just what course the trend will take after leaving the locality of the Parker well and going south, is problematical, and insufficient data eliminates the possibility of any conjectures in this direction. Estimates as to the trend south of the Parker well must at this time be 100 per cent "Boilerhouse".

Sand Condition Different

According to Mr. Oliphant, the sand condition in the trend region is rather different from the sand in the main body of the pool. The sand in the main body of the pool is gray, while the sand in the trend wells has been uniformly brown, and slightly different in texture from the main body of sand. The cementation condition found between the two producing regions possibly accounts for a part of this difference.

The Oliphant well is situated 3 miles north of the town of Shidler, which was the scene of much activity during the Burbank boom. The transportation facilities for bringing material into the field are the Osage Railways, (a branch of the Midland Valley Railroad), and the Santa Fe Railroad. The Osage Railway runs about 1 mile from the well, while the Santa Fe has a freight switch into Shidler. This territory is about 30 miles from the city of Pawhuska, the capital of the Osage nation, and the headquarters of the Osage Indian Agency.

To continue further observations about the trend, Mr. Oliphant has the theory that it was caused by river laid depositions, in a stream which at some prehistoric period, fed the lake where the Burbank Field is now located. Separate and distinct from the lake area, the river region wound its way around the lake.

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BIG WELL LENDS INTEREST TO COMING SALE OF OSAGE LEASES

The next auction sale of leases in the Osage Indian Nation will be held Monday, December 12, when 20,000 acres in Osage County will be offered to the highest responsible bidders. The sale will be held in Pawhuska.

The date of the sale had originally been announced as Tuesday, December 6, but at the request of the Osage Oil & Gas Lessees Association the change was made as the original date conflicted with the opening session of the American Petroleum Institute in Chicago. The last previous sale was held March 28, when approximately 70,000 acres were offered and about 20,600 acres disposed of, the rest of the acreage not having received any bids.

Interest in this sale will center on the tracts nearest the lease of Oliphant and others, the northeast quarter of Section 14-27-6, on which in the northeast corner the owners recently brought in a 4,800-bbl. well flowing naturally at 42 feet in the Burbank sand, one of the very largest natural producers Burbank has ever known. Details on this new well and the producing trend which it is believed to indicate are given in another part of this edition.

The tracts nearest that of Oliphant and others to be put up at auction will be the southwest quarter of Section 16-27-6, which is a northeast offset to the Oliphant tract, and the northwest quarter of Section 21-27-6, just east of the Oliphant tract. The only other tracts to be offered out of Township 27-6 are the northwest quarter of Section 27 and the northeast quarter of Section 28.

There is much speculation as to what the nearby tracts will bring at the coming sale. In the sale on March 28 the top price paid for a 160-acre lease was $645,000 for the northeast quarter of Section 3-26-6 by the Kewanee Oil & Gas Co. The Skelly Oil Co. paid $555,000 for the southwest quarter of Section 27-27-6. The highest price paid for any Osage lease was $1,990,000 by the Midland Oil Co. for the northwest quarter of Section 14-27-5, which is now producing about 75 bbls. a day from 16 wells.

Unofficial figures on the total production of that part of the Burbank Field

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Mines Bureau Has Experimental Well

Scientific Investigation Expected to Provide Exact Data on Disputed Questions in the Recovery of Petroleum

By Thomas F. Smiley

Acquisition of scientific facts extremely important to the oil industry is foreshadowed by experiments about to be performed by the United States Bureau of Mines at its petroleum experiment station in Bartlesville. The experiments, dealing with various problems in the recovery of petroleum, will be under the direct supervision of R. R. Brandenthaler, petroleum engineer at the Bartlesville station. Associated with him in this experimental work are W. S. Morris, assistant petroleum engineer, and E. L. Rawlins, assistant gas engineer.

The experiments contemplate the actual recovery of oil from sand under conditions closely analagous to those existing underground, but with every part of the process carefully watched, measured and recorded. When they are completed it is expected to have for future guidance a mass of fundamental facts which oil men say would be impossible of acquisition but for this unique project undertaken by the Bureau of Mines. They will embrace the whole range of production processes from the initial flow, through the pumping and gas or air lift stages to the period when the known methods of recovery have drawn the last possible drop of oil from the "pool."

Harry H. Hill of Washington, D. C., chief engineer of the United States Bureau of Mines, visited the Bartlesville station recently and details of these experiments, which are regarded as of supreme importance to the oil industry, were the subject of conferences with Supt. N. A. C. Smith, Mr. Bradenthaler, Mr. Morris and Mr. Rawlins. Plans for the equipment necessary for the experiments were gone over thoroughly and it was said that no pains will be spared to make the whole undertaking scientifically authoritative, enabling oil operators to proceed by sure and established formulas in many departments of their work where now they are obliged to grope and guess.

Derrick Already Up

A substantial beginning already has been made with the erection of an 81-foot modern steel derrick on the bureau's property in Bartlesville. The derrick was loaned to the bureau by the National Turnbuckle Derrick Co. The derrick is set on a concrete foundation and a concrete walk leads from the bureau buildings to the derrick. Platforms are to be constructed on alternate girts to the crow's nest. The crow's nest itself will represent the surface of the ground in the experimental work to be undertaken. An oil and gas separator will be installed on a platform on the crow's nest.

Below the derrick floor a reservoir of sufficient strength to withstand a pressure of 200 pounds to the square inch is to be constructed. It will be filled with screened sand of uniform size and this sand then will be saturated with oil of carefully ascertained properties, including viscosity, gravity, temperature, solubility, gas in the oil and chemical analysis. The amount of oil introduced into the sand will be measured and the tank thus will represent a drainage area of calculated extent under certain field conditions. An air-compressor will provide the equivalent of gas and rock pressures in the sand.

With the platform on the crow's nest representing the top of the ground and the reservoir beneath the derrick floor representing a subterranean production sand, the space between them, if one desires to employ imagination, will represent formations encountered in drilling. Pipe to correspond to casing and tubing will be run from the top of the well, in the crow's nest, to the "producing sand" beneath the derrick floor. Every device essential to making experiments correspond to actual field conditions will be installed and careful mathematical calculations will make operations in this experimental oil well yield results that will point with certainty to similar results in the field.

It thus may be seen that by working at proportionate pressures and with small sizes of tubing and casing whose relation to those used in the the field is known, it is wholly probable that fundamental data will be obtained. It is planned to verify the results of the work performed in the experimental well by making actual field tests.

A study of natural flow will require experiments in unrestricted flow as compared with restricted flow; control of well pressures by means of tubing (use of varying diameters); holding pressure at the bottom of the tubing and also at the well head and the trap; packing off at the well head as against using a packer above the sand.

To Study Natural Flow

In all this work pressures, velocities, temperatures and gravities will be determined, as will the gas and oil production. Most wells flow naturally prior to the installation of a gas lift, and a generous amount of time probably will be spent in this study of natural flow. As all experiments will be conducted quantitatively, the recorded results are expected to serve as a basis for comparisons and also to provide data for possible formulas. Percentage of recovery can be determined along with the porosity of the sand in the reservoir, since the capacity of the reservoir and the amount of oil in it will be known.

It is planned to obtain a continuous record of all operations by means of recording pressure gauges, orifice gas meters, recording thermometers, hydrometers, gauge tank and a control device.

The place of the gas (or air) lift in the production of oil will be the subject of careful and exhaustive study in the series of experiments to be made. In view of the diversity of opinion now expressed as to the value of this modern device under a given set of circumstances, it is regarded as highly important that exact and authoritative information be made available for the oil producer.

Up to the present time no practical method for determining the rate of fluid buildup in a well that can be used under any conditions has been developed. To do this experimentally, however, will be a comparatively simple task, as pressure readings can be taken at regular intervals, and from these the rate of flow may be computed. The problem here will be to devise some method for general field use.

The first step in the investigative work will be a study of flow through casing and tubing without any attempt being made to control pressures. This will necessitate the use of several sizes of tubing and casing, varied lengths of tubing. In all of this the experimenters will make quantitative determinations of the rate of recovery and also of the ultimate recovery.

The rate of uncontrolled flow through tubing and casing having been ascertained, the next set of experiments will deal with controlled flow. The different methods of controlling flow will be utilized, among these being pressure held at the bottom of the tubing, at the well head and at the trap, also the use of telescope tubing.

Value of Footpieces

The use of footpieces, installed on the tubing, has been the subject of much discussion, some engineers contending that good results may be obtained, others asserting that they have not observed any increase in efficiency through use of footpieces. Light on this moot question probably will be obtained in the Bureau of Mines experimental well, as it is intended to devote study to different types of footpieces in order to determine their actual value, if they have any.

A review of information now in hand on the methods employed in producing wells when flowing naturally or by the gas lift indicates, according to Bureau of Mines officials, that experimental data on both methods will have to be obtained before much further progress can be made in either. Conflicting opinions regarding the best procedure to follow on wells flowing naturally demonstrate the evident need for experimental work in this field.

Some operators and engineers contend that controlling pressure does not result in increased efficiency of flow or in increased ultimate production, while others declare that the reverse is true. It is believed by many that this disparity of view is the result of insufficient data on the subject.

On account of economic conditions governing the production of oil, few producing companies or individual operators are in a position to sacrifice immediate production in order to make complete and comprehensive tests that would provide the information sought.

It is not believed that any such tests ever have been made by operators in the field, and if such tests have been made, it hardly is to be expected that the results will be made available for general use by other and competing operators. It is pointed out that the Bureau of Mines has no financial interest at stake, that it can conduct these tests of vital importance to the oil industry without the smallest prejudice as between methods or mechanical devices advocated by different persons and with only one object in view—the acquisition of scientifically exact facts to take the place of conjecture.

PROGRAM FOR A. P. I. CONVENTION COVERS WIDE VARIETY OF SUBJECTS

The American Petroleum Institute makes the following pre'iminary announcement of the program in connection with its eighth annual meeting to be held at the Stevens Hotel, Chicago, December 5, 6, 7, and 8.

Committee Meetings

Immediately preceding or during the eighth annual meeting the following named committees will meet at the Stevens Hotel, the exact time and meeting place of each to be designated and published later:

Committee on Public Relations.
Committee on Gas Conservation.
Committee on Oil Pollution.
Committee on Uniform Methods of Accounting.
Committee D-2 on Petroleum Products and Lubricants (A. S. T. M.).
Committee on Vapor Pressure.
Committee on Tank Car Calibration.
Committee on Fire Prevention.
Committee on Railroad Transportation.
Tank Car Mechanical Committee.
Committee on Automotive Transportation.
Committee on Standardization of Belting.
Committee on Standardization of Specifications for Steel and Iron Pipe for Oil Country Tubular Goods.
Committee on Standardization of Rig Irons.
Committee on Standardization of Wire Rope and Manila Cordage.
Committee on Standardization of Standard Rigs and Derricks.
Committee on Standardization of Rotary Drilling Equipment.
Committee on Standardization of Pumping Equipment and Engines (in re oil production).
Committee on Standardization of Cable Tool Joints.
Committee on Standardization of Oil Steel Storage and Production Tanks.
Committee on Standardization of Oil Field Boilers.

Monday, December 5

10:30 a. m.—Meeting of board of directors. (Private dining room No. 1.)

Luncheon for members of the board at noon. (Private dining room No. 2.)

Tuesday, December 6

Morning.

10:30 a. m.—Meeting of the board of councillors. (North ball room.) To nominate candidates for election as members of the board of directors.

Afternoon.

2:30 p. m.—General session. (Grand ball room.)

The president's address: E. W. Clark.

Report of the board of councillors.

Election of directors.

The Story of Petroleum: Premier showing of the six-reel motion picture film produced under the direction of the United States Bureau of Mines in cooperation with the American Petroleum Institute.

Evening.

(Program to be announced later.)

Wednesday, December 7

Note—There will be no general session on Wednesday. The morning, afternoon, and evening will be devoted to group meetings, arranged by general topics, at which the various subjects will be treated in addresses and papers by selected speakers. Opportunity will be given for br.ef general discussion of the subject after each speaker has finished.

Morning.

10:30 a. m.—Meeting of new board of directors. (Private dining room No. 1.)

Luncheon for members of the board at noon. (Private dining room No. 2.)

10 a. m.—Group Meetings:

Group 1.

General topic: Motor Fuel. (North ball room.)

Report on co-operative motor fuel research at the United States Bureau of Standards during the current year:

"An Interpretation of A. S. T. M. Distillation Test," O. C. Bridgeman and C. S. Cragoe.

"Some Factors in Engine Acceleration," R. Best and J. O. Eisinger.

"A Detonation Survey," H. K. Cummings.

"A Comparison of Methods of Measuring the Knock Characteristics of Fuels," Dr. Graham Edgar, Ethyl Gasoline Corp.

General discussion.

Group 2.

General topic: Standardized Oil Field Equipment. (Grand ball room.)

Condensed reports of the following standardization committees:

Committee on Belting for Oil Country Use.

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Iraq 50,000-Bbl. Gusher Opens Field

Likely to Reopen Whole Question of Near Eastern Politics. Text of the Turkish Petroleum Co. Agreement

By Special Correspondent

NEW YORK, Nov. 5.—The recent report from Bagdad which states that the Turkish Petroleum Co. has struck oil near Kirkuk, Iraq, and that the actual flush flow of the well is approximately 50,000 bbls. a day gives every promise of reopening the whole question of Near Eastern oil politics which has had a respite since the entrance of the Turkish Petroleum Co. upon its explorational work.

Iraq, it will be remembered, is a generally wedge-shaped country extending northwest from its point at the head of the Persian Gulf. Persia forms the eastern boundary, Armenian Turkey the northern, the French protectorate of Syria the northwestern and Transjordiania and the constantly changing Arabian principalities the southwestern.

The natives of this region have been utilizing the many oil seepages for hundreds of years. One authority estimates this "production" at 5 bbls. a day for 3,000 years. The Germans during the war sank a few holes by one series of seepages. The deepest was less than 200 feet, but when pumped vigorously by hand yielded, of course, as much as all the seepages in the country.

It will be recalled that the Turkish Petroleum Co. is now made up of an international group of oil interests of which the outstanding members are the Royal Dutch Shell, Anglo-Persian Oil Co., Ltd., Pan American, Gulf, The Texas Company, Atlantic Refining, Standard of New Jersey and Standard of New York. Seventy-five per cent of the stock ownership is vested in British, Dutch and French interests while the American companies listed divide the remaining quarter interest. One Mr. Gulbenkin, a Turkish subject, owns a 5 per cent interest in the company.

The Turkish Petroleum Co. has had a hectic career and as it now stands represents the various compromises made by the foreign offices of the British, Dutch, French, Turkish and American governments in a succession of negotiations extending over many years. Strangely enough oil in commercial quantities has never been produced in the areas allotted to the Turkish Petroleum Co. up to the time of the well now reported in Kirkuk.

In the belief that the near future development of oil production in the Near East will be an important factor in the international petroleum trade, The Oil and Gas Journal prints below for the first time in any American publication the contract of the Turkish Petroleum Co. with the Government of Iraq governing operations of this company in Iraq.

The convention made March 14, 1925, between the Government of Iraq and Edward Herbert Keeling, representing the Turkish Petroleum Co., granted the company "the exclusive right to explore, prospect, drill for, extract and render suitable for trade petroleum, naphtha, natural gases, ozokerite, and the right to carry away and sell the same and the derivatives therefrom for 75 years and to construct a pipe line to the Mediterranean at the expiration of which period the properties of the company in Iraq shall become the property of the Government free of charge.

"The area shall, where not otherwise stated, be 'Iraq, except the Transferred Territories and the region formerly the Vilayet of Basrah,' to be further defined 'as soon as the territorial limits of Iraq have been determined.'"

The agreement continues:

4. The company shall, within eight months after date of this convention, commence a detailed geological survey, in at least three different districts of the defined area, and in the event of this provision not being complied with, this convention shall become entirely null and void on the expiration of the said period. For the purpose of the said survey the company's servants and agents shall have power to enter upon any part of the defined area free of charge.

5. Within 32 months after the date of this convention the company shall select 24 rectangular plots, each of an area of 8 square miles, and within three years after the date of this convention the company shall start drilling operations therein, working continuously with a minimum of six rigs, and in the event of this provision not being complied with, this convention shall become entirely null and void.

During the 36 months subsequent to such three years the company shall drill not less than 36,000 feet and thereafter in each year of the period before it orders a pipe line to a port for export shipment, the company shall drill at least 12,000 feet, provided that no drilling shall be required when the whole of such plots shall have been fully tested, and provided also that any drilling during the aforesaid three years, and any excess drilling over the amounts named herein shall be credited to the amount required subsequently to such drilling. In the event of any breach of this obligation the Government may give the company written notice to remedy the same, and in the event the company not doing so within six months of such notice the Government shall have the right to cancel this convention without prejudice to any claim which the Government may have for damages. All drilling shall be efficient and workmanlike.

The company shall order the said pipe line as soon as it shall be commercially justifiable, and shall complete the construction of the same as soon as practicable. If the company shall not have placed an order for the said pipe line before the expiration of four years after declaring the whole of the said plots to be fully tested, it shall thereupon abandon all rights under this convention, provided that the Government shall require from the company, at a price equal to their commercial value (which shall be agreed, or failing agreement, settled under Article 40 thereof) any wells (excluding the oil therein), pipe lines, refineries, or other works which are in use or under construction for the supply of Iraq's requirements under Article 14 hereof.

6. The Government shall, not later than four years after the date of this convention, and annually thereafter, select not less than 24 rectangular plots, each of an area of 8 square miles, and the Government shall offer the same for competition, by sealed tender, between all responsible corporations, firms and individuals, without distinction of nationality, who desire leases. Both the company and any such prospective lessee may indicate any plots (other than those selected under Article 5 thereof) to be offered among such 24, and the same shall be offered accordingly by the Government. The company shall give all such prospective lessees such geological information as it possesses with respect to the plots to be offered for competition. For the purpose of this article the company shall act as the Government's agent and shall advertise the said plots in the leading newspapers of Iraq and the leading petroleum newspapers of the world, and the tenders shall be opened and adjudicated upon by the company in its head office in Iraq in the presence of a duly authorized representative of the Government. The sale proceeds of such competition shall be handed by the Government to the company. The Government shall grant to the higher bidder for each plot, unless he shall be disapproved by the Government on reasonable grounds to be given within 60 days, a lease thereof for the remaining period of this convention, conferring all the rights and imposing all the obligations and binding the lessee (1) to drill, in an efficient and workmanlike manner, not less than 1,500 feet during the three years, subsequent to the execution of the lease, and thereafter in each year not less than 500 feet, until the plot shall have been fully tested, provided that any drilling in excess of the said amounts shall be credited to the amount required

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Kirkuk, the scene of the new oil field, is directly north of Bagdad and southeast of Mosul.

IRAQ OIL IS 34 DEGREES BAUME, PRODUCED FROM DEPTH OF 1,521 FEET

Commenting on the gusher opening the Iraq Field, the London Oil News says:

The new well near the town of Kirkuk, within the border of the concession, is the first big one brought in by the Turkish Petroleum Co. Some time ago it was announced that the Turkish Petroleum had ordered and was shipping to Iraq 10 heavy drilling rigs. A talented and considerable geological staff had already conducted extensive and important investigations; and it was not until their conclusions were in black and white that such a considerable sum of money was expended practically simultaneously.

The Kirkuk well came in October 15. It was drilled with rotary tools until the cap rock was attained, when the work was changed over to percussion. The wisdom of this course, which was stipulated for by the company's management at the very beginning, was quickly manifest when, after a very short bout of percussion drilling, the oil sand was entered and the tools were blown out of the bore hole. The management and its technical staff had long ago agreed that heavy valves and other fittings proper for dealing with a large gusher should be installed; and this had already been done. The result was that in the course of the week the well was successfully capped and shut in. Its depth is 1,521 feet. We are not informed as to the actual daily capacity of the well; but we can say this with perfect certainty: that the first report of 5,000 tons per day, and even the second report of 7,000 tons per day, are well within the mark. The oil is a 34-degree Baume (say in the neighborhood of 0.854 specific gravity); the rock pressure is the very considerable one of round about 900 pounds; the containing rock is limestone, as in Persia; and on available data one may surmise with some degree of accuracy that the oil and conditions at which it is found approximate to those prevailing in Persia.

The Turkish Petroleum Co. is not a concern that has to win its spurs by getting a little oil, but with a combination of the Anglo-Persian, Royal Dutch and Standard, who are past masters not only in oil production but in oil policy. Until the structure is proved there will be no order given for the construction of a pipe line. Plans may be made meantime; that would only be prudent; but the next task before the company is to

(Continued on Page 112)

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A NEW ROAD

Some of the most perplexing problems of present-day oil field operation are to be subjected to a practical test at the experimental station of the Bureau of Mines at Bartlesville, Okla., if the means are placed at the disposal of the petroleum engineers at the station.

The great and yet unanswered question regarding the use of the gas or air lift is its effect on ultimate recovery. It is a new road. Nobody knows whether more oil can be extracted from the sands by natural flow, pumping, or the air-gas lift. Recovery can be speeded but is it at the cost of smaller ultimate production? Or if the recovery is greater is it commercially profitable considering the increased cost of production through the installation of new equipment?

The problem is of immediate and pressing importance to every operator who is contemplating recourse to the air-gas lift system, and indirectly but not less vitally to the industry at large.

If we are entering upon an era of speedy recovery with prospects of rapid flush production such as upset the industry at Seminole we should have some definite information about the eventual consequences. If that system is uneconomic and the older methods are to be continued it will mean a great difference in the outlook for the oil business.

The practical demonstrations about to be undertaken at Bartlesville by the petroleum engineers of the Bureau of Mines ought to settle the point. For that reason their importance cannot be overestimated and whatever means are needed should be promptly contributed by the oil industry for its own good.

The purpose is to reproduce in miniature, as explained in an article elsewhere in this issue of The Oil and Gas Journal, the actual conditions encountered in operating the air or gas lift and to note the effects of this test at all its stages. By this means each phase of the operation will be studied scientifically and practically, the amount of gas produced with each barrel of oil, the oil-gas ratio, the effect of production practices and the ultimate volume recovered.

The answer to the questions thus tested will be worth millions to the industry as a guide to future operations. The cost of the experiment will be trifling. It would be the cheapest and at the same time, in value of information, the biggest investment the industry could make.

The Petroleum Division of the Bureau of Mines, it is well known, has been functioning under difficulties, ever since it was established in 1914 with an initial appropriation of only $25,000. Every oil man will agree that its value to the industry and to the country has been out of all proportion to the meagre support it has had from Congress.

It would have been even worse handicapped had it not been for the voluntary assistance given to it outside the government appropriations. It owes the experimental station at Bartlesville to the Bartlesville Chamber of Commerce which provided a site and $50,000 for buildings. The State of Oklahoma has aided the station by an appropriation of $50,000.

The universities of Colorado and Wyoming provided laboratories for the offices at Boulder and Laramie and the State of Colorado provided $8,000 for the past few years in aid of the oil shale work at the Boulder laboratory. In this connection it may be recalled that the oil shale testing station put in operation by the Bureau in Colorado has had to be shut down because of failure of Congress to appropriate for its continuance.

Much of the Bureau's research work which has proved so valuable to the gas industry was made possible only through the cooperation of the Natural Gas Association and the American Petroleum Institute has also felt it a duty to co-operate with the Bureau in several of its studies of benefit to the oil industry.

It is surely out of keeping for a three-billion Government like ours to force one of its chief scientific bureaus to depend upon the contributions of public-spirited citizens for the continuance of its work. But that has been the history of the Bureau's petroleum division and is likely to continue to be until Congress is aroused to the importance of its labors in the production and conservation of the Nation's supply of oil and gas.

The record of what the petroleum division of the Bureau of Mines has accomplished is a running commentary on the progress of the petroleum industry. It played an important part in pointing out and eliminating the early-day wastes of oil and gas through less efficient drilling. It studied the use of mud fluid and cement; and methods for controlling high pressure gas and shutting off water.

Its engineering studies were carried into the field and aided greatly in determining drilling depths, dealing with water encroachment and methods for increasing recovery. The Bartlesville station is now studying the restoring of pressure in partly depleted sands, and the relative efficiencies of air and gas in driving oil to the wells.

Leakage in gas lines, the control and operation of gas wells, the flow of gas through pipe lines and determining the capacity of gas wells without open flow tests, are some of the studies that have been of great profit to the gas industry.

Owing to the lack of adequate appropriations proper equipment for experimental research in these petroleum and gas studies has had to be improvised or borrowed or as best the engineering staff could obtain it, when thorough realization on the part of Congress of the value of the Bureau's work would have provided the most efficient equipment at the outset.

On the eve of the present air-gas lift tests at Bartlesville many things are needed which should be supplied by the oil industry without hesitation because of the importance of the information to be obtained. To wait for Congress to appropriate for them would be a waste of time and probably in vain. And the industry cannot wait. The sooner these fundamental facts about the effect of the air-gas lift are definitely known the better.

The American Petroleum Institute, with the approval of the industry, has authorized a comprehensive program of petroleum research which is now under way, thanks to the endowments donated by Mr. Rockefeller, Sr., and the Universal Oil Products Company. This program deals, however, with fundamentals largely. The proposed tests at the Bartlesville station will deal with actual operations of immediate application. Possibly it might be suggested that it also should share in support from the Institute.

(Continued on Page 38)

DRESSER COUPLINGS

In the roughest territory and where conditions are most severe, pipe lines are laid with Dresser Couplings. Here they are stringing pipe up the slopes of Pike's Peak for a Dresser coupled high pressure water line. When finished it was like all other Dresser installations—a complete success.

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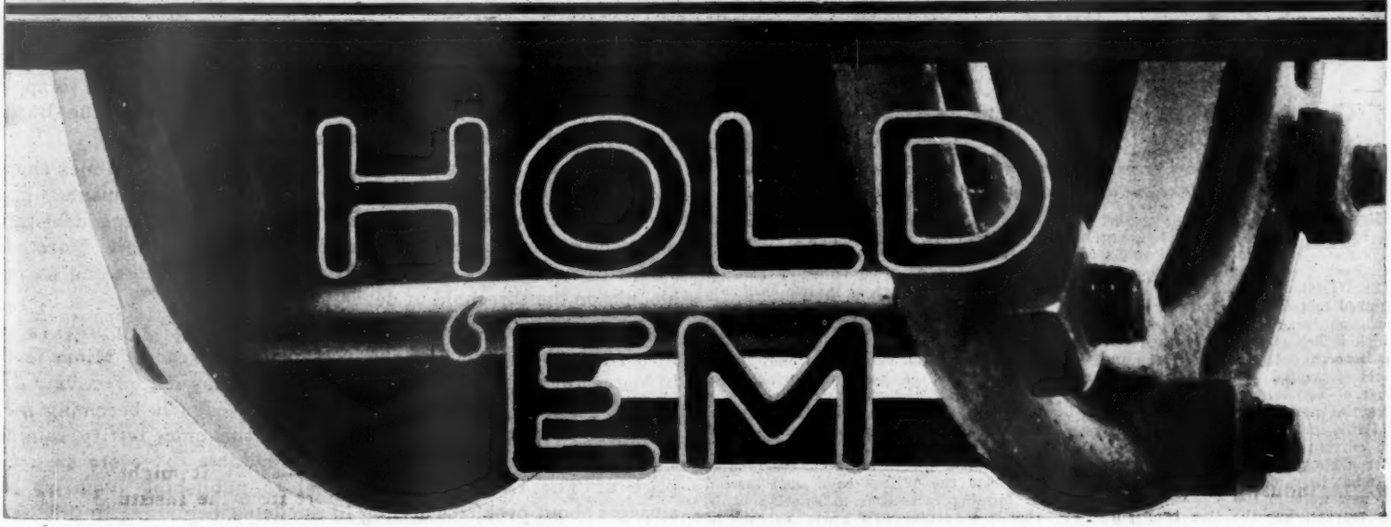


FOUR RECENT COMPLETIONS CHANGE SITUATION IN GREATER SEMINOLE

By J. L. Dwyer

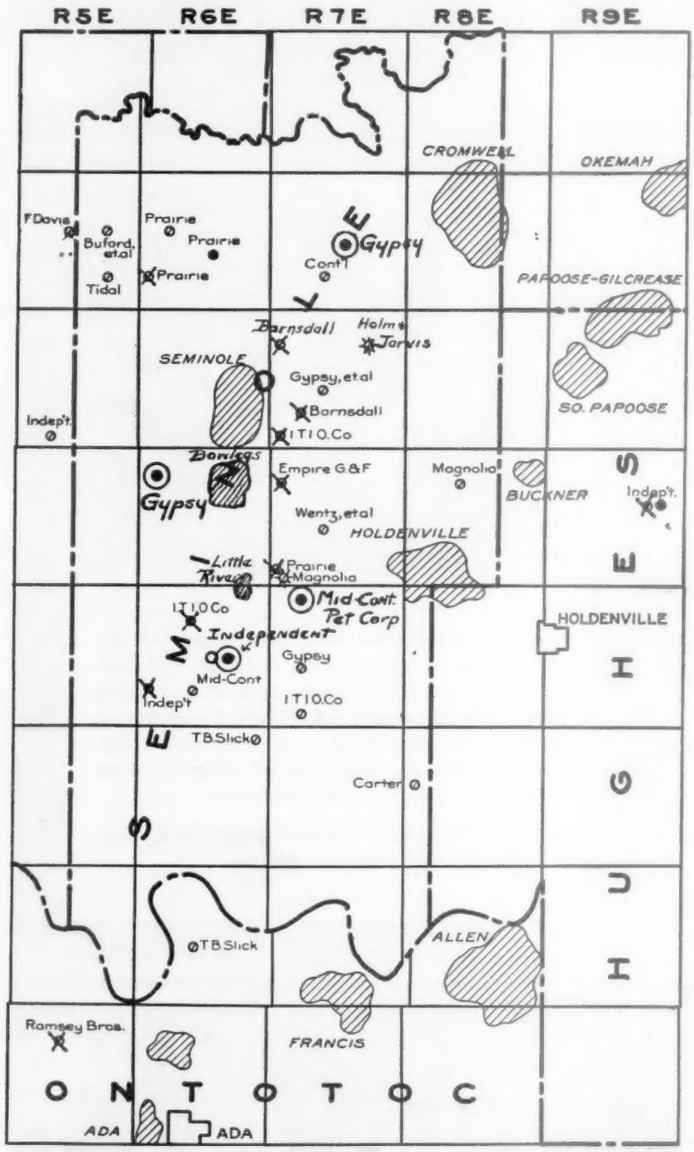
With a rapid change which is characteristic of the oil industry, the situation in the Greater Seminole area of Oklahoma has been subjected to a complete reversal within the past 10 days. The finding of good pay sand in four wells in widely separated regions, has done much to tone down the general feeling that from this point on a big improvement in the situation would be evident. The threat of four new pools, even though they be limited in area, will check any overly optimistic tendencies, and although the output of the four new wells may be held down to conform to the agreement of the Seminole operators, the menace of their potential production will have a somewhat depressing effect.

The Oklahoma crude situation has not changed in point of shipments, and little variation is seen in the quantity of oil which is being put into storage daily by the large purchasers, but the four new pools discovered within the past 10 days must be estimated as having a possible potential peak of at least 200,000 bbls., and this quantity of crude hanging over the current market, will be sure to reflect a sluggish condition.

It has been mentioned that pinching in the new wells to 100 bbls. daily will save the market, but the threat of potential production seems similar to having a mad dog in one's front yard; the dog won't bother one as long as one remains in the house; but traveling is restricted.

The first of the four new wells was discovered 10 days ago by the Gypsy Oil Co. between the old Cromwell Field and the Searight Pool. The well is in Section 21-10-7, and it found what is thought to be a branch of the Dutcher family of sands (which produce in the Cromwell, Lyons-Quinn, and Papoose Fields). The sand was touched at 3,730 feet, and the well began flowing at the rate of 325 bbls. daily. It is rated at 200 bbls. per day, and will probably mark the location of a good Dutcher sand pool. The sand was drilled 4 feet, to 3,734 feet, and when it lightened up, the danger of water was feared, and the well was plugged back 1 foot to a total depth of 3,733 feet. This is not the body of Dutcher sand which is encountered in the majority of pools producing from this horizon, and drilling activity may result in uncovering a thicker body in this area. The Gypsy well is now producing 180 bbls. daily.

The other three new wells are producing from the Wilcox sand, and instead of forming extensions to existing pools, they are opening new areas, as each of them is completely cut off from the present limits of production by dry holes.



The Greater Seminole area, showing the recently completed wells within the double circles.

Run Low Structurally

The most significant phase of all three of them is the particularly low position of the Wilcox formation. In discussing this condition, it is particularly true that in former wells which opened new pools, the Wilcox was found relatively high, but all three of the new Wilcox wells are running extremely low structurally.

All three Wilcox sand wells are in the south end of the Greater Seminole area, the Gypsy well in Section 7-8-6 is the highest in point of elevation, with 1,011 feet. The Mid-Continent Petroleum Corp.'s well in Section 5-7-7 has an elevation of 979 feet, and the Independent Oil & Gas Co.'s well in Section 23-7-6 is the lowest topographically with an elevation of 880 feet.

The Gypsy well in 7-8-6 is 2¾ miles west of the present limits of the Bowlegs Field, situated close to old Mission well which is one of the highest points in that country. It is a diagonal offset to the dry hole drilled by the Amerada Petroleum Corp. in the same section, and to complete this well to the Wilcox sand with the dry hole across the fence required courage. The Gypsy well had an initial flow of 90 bbls. an hour, and increased to 140 bbls. hourly during the first 24 hours. There is ample area for a pool to the north and northwest of this well, and the territory will probably be tested very cautiously owing to the Amerada's duster and the thought that the area of this new pool may be small.

The Independent Oil & Gas Co.'s well in Section 23-7-6 furnished the second surprise in wildcats, and it touched the Wilcox sand at 4,323 feet, starting in with a flow of 110 bbls. per hour, and making an average of 2,300 bbls. per day the first few days. This well is close to the Barnsdall Oil Co.'s well in Section 22-7-6 which was reported some months ago to have found the Viola limestone very high, and which has been shut down for two months. The Barnsdall well is believed to be a potential pool opener, and the Viola is running 139 feet higher in it than in the Independent well.

The Mid-Continent Petroleum Corp.'s No. 1 Smith in Section 5-7-7 is 1½ miles directly east of the Little River Pool, and it furnished the fourth surprise at the week-end when it found the Wilcox sand

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NO NEW WELLS TO BE STARTED ADJOINING SEMINOLE EXTENSIONS

Under a plan formulated by the owners of leases in the Greater Seminole Field, no new wells will be started adjacent to the recently completed wells which have extended the field in three different localities. The new wells are being pinched in to 100 bbls. per day.

The only exception to this plan was made in the case of the Darby Petroleum Co. which is the owner of a short-term lease, and which will be permitted to start one well in order to save its lease. The well will be drilled to the Wilcox formation providing that no commercial production is found in the upper sands. Should any oil be found in the Cromwell sand or the Hunton lime, or other stratum, the well will be temporarily completed in that formation, and if they are all dry, the Wilcox will be tested out.

The new plan will eliminate the starting of 75 wells in all directions from the new finds, and it has been ratified by all excepting two lease owners who were unrepresented at a meeting called by Umpire Ray M. Collins on Tuesday of this week at Tulsa.

It is thought that the two owners will agree to the plan, and the members of the proration committee will personally call upon them to discuss their joining this movement.

The Darby Petroleum Co. will be permitted to drill one well a half mile southwest of the Mid-Continent Petroleum Corp.'s well in Section 5-7-7.

EDITORIAL

A NEW ROAD

(Continued from Page 36)

At the annual meeting of the Institute to be held in Chicago next month it will be met by the demand from the chairman of the Federal Oil Board that it co-operate in the conservation of the Nation's oil resources. The petroleum division of the Bureau of Mines has been co-operating with the industry in that conservation ever since it was founded although the Government after creating the division of engineers failed to furnish it with the machinery to operate.

Chairman Work and his associates on the oil board might do a constructive work for oil conservation by using their influence as members of the President's cabinet in inducing Congress to appropriate sufficient funds for the petroleum division of the Bureau of Mines to function to its fullest efficiency.

In the meantime, as has been the case in the past, oil men should come to the aid of the Bureau in its pending experiments. Each year finds the industry becoming more and more dependent upon engineering and technological research and enterprise. More such problems have arisen in the past year than ever before and we may be only on the threshold of developments.

Recognition of this trend leads The Oil and Gas Journal to emphasize the importance of the work of the Bureau of Mines to the industry for what it has done and what it may do, effectively supported. Out in the fields technical knowledge is becoming more and more necessary as inquiries reaching this office testify, so much so, indeed, that it has been deemed advisable to devote an entire page of The Oil and Gas Journal to publishing inquiries and answers about problems arising in the fields, beginning in this issue.

Yates Pool Has Been Further Defined

Three New Wells Made Water in Varying Amounts. Two Close to Wells Making Water, One 5 Miles West of Production

By C. D. Lockwood
Staff Correspondent, North and West Texas

FORT WORTH, Tex., Nov. 7.—The Yates Pool of Pecos County was further defined during the past week by three new wells which made water in varying amounts. Two of these are close to the other wells in which water was found several weeks ago. The other is about 5 miles west of production and just a mile north of the old Texas Top dry hole. More than 30 new locations were made in West Texas during the past week, of which 14 were in the Yates Pool, 2 in the Hendrick Pool of Winkler County, and 7 in Howard County where Magnolia Petroleum Co. brought in a big lime producer a couple of weeks ago.

West Texas production dropped off 5,380 bbls. during the past week, due to pinching of production in the Church-Fields Pool of Crane County and to falling off in Upton County's output. The Church-Fields and Gulf-McElroy area produced 107,479 bbls. daily last week as compared with 110,288 bbls. daily the week before. Upton County dropped from 21,554 bbls. to 18,556 bbls. Pecos County was up a little, from 31,974 bbls. last week to 33,375 bbls. this week, but this represents only a fraction of the potential production from the Yates Pool. Winkler County remained practically stationary at 18,046 bbls. from 16 wells, or an average of 1,128 bbls. per well. The entire West Texas output this week was 213,606 bbls. daily from 1,077 wells, or an average of 198 bbls. per well. Last week there were 1,061 wells in the district making an average of 206 bbls. each.

Yates Pool

In the Yates area of Pecos County, Douglas Oil Co. and Roxana Petroleum Corp.'s No. 1 Sellman (or White & Baker) located in the SW cor. of Section 6, Block 194, about 5 miles west of production, encountered sulphur water at 1,518-19 feet and was shut down for orders. This test was never regarded by the majority of those who watched the field deveolpment as having much chance to produce oil unless it found another structure separate from the one on which the Yates Pool is situated. This well, however, had a small smell of oil and a show of gas 1,390-1,400 feet in brown and gray sandy lime, according to reports and it is interesting to note that it had only 100 feet of salt section. This was from 750 to 850 feet, with a brown lime break at 825-30 feet.

Marland Oil Co. encountered water in two wells on the Yates-A tract in Section 60. No. 2, which is located just south of No. 1, near the NE cor. of the tract, flowed 357 bbls. an hour at 1,045 feet but had 1 per cent sulphur water. It was pinched down to a three-sixteenths-inch choke and made 135 bbls. of clean oil, no water, in eight hours, then was shut in for 16 hours. At latest report it was shut in entirely for a production test. Same company's No. 3 Yates-A swabbed 720 bbls. in 24 hours at 1,033-1,148 feet, but made 35 per cent water. At latest report it was producing 120 bbls. net oil daily, and 90 per cent water. This well is located southwest of No. 2 a short distance. Marland's No. 4 Yates-A, which is situated on the west line of the tract, and is west of No. 3, is flowing 1,015 bbls. at 1,025 feet.

The peculiarities of this field's producing horizons are demonstrated by Mid-Kansas and Transcontinental's No. 2 Yates-C, in Section 60, a west offset to Marland's No. 4 Yates-A, mentioned above. This well struck a pocket of gas and a hole full of oil at 560-70 feet which produced 132 bbls. in 12 hours. Showings at this level have been encountered in some of the other wells but this is the biggest production that has yet been found at such a shallow depth.

Gauge on Gulf Well

The latest gauge on Gulf Production Co.'s No. 2 Thompson, across the river from the Yates producers, shows 417 bbls. of fluid, of which 8 per cent was water. This amount was the result of pinching. Mid-Kansas Oil & Gas Co.'s No. 3 Yates-B was making 200 bbls. daily, pinched, at latest report, and no water was reported.

Mid-Kansas and Transcontinental's No. 1 Yates-D, in Section 62, a north extension to the field, flowed 3,020 bbls. last Saturday through one 4-inch line. Total depth is 1,242 feet and it was starting to drill deeper at that time.

There are 55 tests under way in the Yates Pool and about a dozen other locations.

Allsman & Bell's No. 5 River Bed is located 312 feet north of No. 4, and No. 11 is located 150 feet south and east of NE cor. Section 68, Block 1. Simms Oil Co.'s No. 3 Smith is 2,343 feet from west line and 861 feet from south line of Section 103, Block 194. Mid-Kansas and Transcontinental's No. 2 Yates-D is 1,936 feet from west line and 821 feet from south line of Section 62, Block 1; No. 10 Yates-A is 505 feet north of No. 1-A; No. 11 Yates-A is 535 feet south of No. 1-A; No. 5 Smith-Taylor is 1,714 feet from north line and 785 feet from west line of Section 33, Block 194; No. 6 Smith-Taylor is 2,249 feet from north line and 725 feet from west line of same section.

Kirby Petroleum Co. and Edson's No. 1 J. H. Tippett is 200 feet from south and east lines of east 50 acres of north 100 acres of south 180 acres, Section 180, Block 194.

Winkler County

Nothing of particular importance happened during the week to change the outlook in Winkler County. Some of the outside tests were holding attention as they went deeper into the formations. Cranfill Brothers and California Co.'s No. 1 Bashara, in School Block 77, northern Winkler County, cored hard sand at 3,135 feet Monday, but it contained no showing of oil.

Northeast of the Hendrick Pool, Amerada Petroleum Corp.'s No. 1 Walton, in SW cor. NW, Section 48, Block 26, was reported Sunday drilling at 2,320 feet in lime and anhydrite. It begins to look as though the big lime will be reached in this well at a higher elevation than most persons anticipated. The elevation at the surface is 2,833 feet.

Gulf Production Co. is preparing to drill in its No. 6 Hendrick, located in the NE cor. of its 160 acres in Section 34, Block B-5, a diagonal southwest offset to Texon Oil & Land Co.'s No. 1 Hendrick-A, which recently turned from a gasser into an oil well. This makes the fourth well which Gulf is drilling in, No. 4 having been completed last week, No. 1 several months ago, and No. 7 drilling into the pay now.

New Crane County Pool

Gulf Production Co. has started the third test on its Waddell Block in Crane County. No. 1, located in the NE cor. of Section 12, Block B-25, was a core test to the salt. No. 2 was completed this week for 30 bbls. after drilling into sulphur water below the oil pay and plugging back. No. 3 is located in the SE cor. NE, Section 3, Block B-25, and tools are being moved in. This is mainly of interest to the Gulf Production Co., as that concern owns the whole ranch solidly. However, this appears to be the beginning of another major pool in Crane County.

WEST TEXAS COMPLETIONS

Crane County

Humble Oil & Refining Co.'s No. 12 University was completed for 1,800 bbls. at 2,880-2,991 feet. Magnolia Petroleum Co.'s No. 11 O'Keefe-University was flowing 90 bbls. whil drilling at 2,968 feet in pay topped at 2,880 feet. Same company's No. 10 University-Hardwicke was completed for 1,200 bbls. at 2,820-82 feet; No. 11 flowed 340 bbls. the first day and 500 bbls. the second day following a shot of 150 quarts at 2,841-94 feet.

Pecos Oil Co.'s No. 8 University made 375 bbls. after a shot of 460 quarts placed at 2,810-2,960 feet. Top of pay was 2,755 feet. Same company's No. 9 University was shot with 420 quarts from 2,810 to 2,960 feet but the casing collapsed and is being swedged.

Tidal Oil Co.'s No. 8 University-I pumped 30 bbls. after a 60-quart shot at 2,912-45 feet. Top of pay was 2,932 feet.

Crockett County

Cushing Refining & Gasoline Co.'s No. 2 L. P. Powell was shot with 10 quarts at 2,600-20 feet, top of pay being 2,604 feet and total depth 2,627 feet. After the shot the well swabbed 35 bbls.

Fisher County

Hucony Gas Co. and Marland Oil Co.'s No. 1 Langford was dry and abandoned at 3,752 feet. Miley and Marland Oil Co.'s No. 1 W. W. Ammons was also a failure at 3,800 feet.

Howard County

Marland Oil Co.'s No. 1 Guitar estate-A was abandoned as dry at 3,509 feet. Magnolia Petroleum Co.'s No. 8 Kelly Chalk swabbed 30 bbls. from sand at 1,634-65 feet. Texon Oil & Land Co. and Marland Oil Co.'s No. 1 W. R. Settles, Lease-A, swabbed 90 bbsl. in 8½ hours from sand at 1,345-51 feet and 1,375-82 feet.

Jones County

Marston Oil Co.'s No. 1 J. S. Swan was dry and abandoned at 3,503 feet. Swensondale Oil Co.'s No. 1 Canton was testing a showing of oil in sandy lime at 3,008-13 feet.

Lynn County

Hart Oil Corp.'s No. 1 Edwards was temporarily abandoned at 1,400 feet.

Pecos County

Allsman & Bell's No. 3 River Bed flowed 175 bbls. an hour, 7 per cent water, from pay at 886-936 feet. It began flowing at 909 feet. Simms Oil Co.'s No. 2 Smith flowed 1,029 bbls. per hour from top of pay and total depth of 1,246 feet. Texon Oil & Land Co. abandoned the location for their No. 3 Yates.

Benedum & Trees abandoned No. 1 J. C. Trees at 3,502 feet. It had been shut down for some time.

Upton County

Champlin Refining Co.'s No. 1 Lane was deepened to 2,040 feet in pay topped at 1,920 feet and recompleted for 1,100 bbls. swabbing and flowing. There was 20 per cent water with the oil.

Brown County

Amerada Petroleum Corp.'s No. 1 Gilbreath made 311 bbls. at 1,322-37 feet; No. 2 made 243 bbls. at 1,293-1,309 feet. Humble Oil & Refining Co.'s No. 6 Gilbreath flowed 300 bbls. at 1,278-98 feet,

(Continued on Page 147)

WILDCAT OPERATIONS IN WEST TEXAS

Week ending November 5, 1927

Company, farm and location—	Remarks—
ANDREWS COUNTY	
George B. Calvin's (was Calvin & Belt's) No. 1 Ratliff & Bedford, C NE Sec. 16, Blk. A-54	Hole full fresh water 1,055 ft.; top salt 1,610 ft.; drilling 1,800 ft.
J. S. Cosden's No. 1 Ratliff & Bedford, C SE Sec. 8, Blk. 73, Public School Land	Top salt 1,585 ft.; drilling 2,850 ft.
Sartain Oil Co. et al's (was Deep Rock Oil Co.'s) No. 1 W. J. Harris, C SE Sec. 12, Blk. A-46, Public School Land, elev. 3,167 ft.	Hole full fresh water 1,050 ft.; shut down 1,260 ft.
B. B. McKennon's (was Neff et al's) No. 1 J. S. Means, C SE Sec. 12, Blk. A-35, Public School Land	Shut down 1,020 ft. for 10-in. casing.
A. G. Carter & Zweifel's No. 1 Cowden, C SE Sec. 18, Blk. A-52, Public School Land Sur., elev. 3,156 ft.	Top salt 1,375 ft.; encountered pocket of air 3,635 ft.; total depth 4,503 ft.; to deepen.
BORDEN COUNTY	
Marland Oil Co.'s No. 1 G. E. McDavid, C SW Sec. 156, Blk. 25, H. & T. C. Sur.	Rigging up.
BREWSTER COUNTY	
Mid-Kansas O. & G. Co.'s No. 1 Turney, Sec. 77, Blk. 213, T. & St. L. Sur.	Drilling 1,400 ft.
Reese & White's No. 1 Kimbale, C NE Sec. 204, Blk. 9, G. H. & S. A. Sur.	Spudded and shut down.
Van McPhail's No. 1 McIntyre, SE cor. Sec. 59, Blk. 352, 7 mi. S of Alpine	Shut down 1,025 ft.
Wilcox & Anderson's No. 1 Gage, Sec. 8, Blk. 300, T. C. R. R. Sur.	Drilling 1,400 ft.
COKE COUNTY	
W. H. Brown et al's No. 1 W. L. Foster, SE cor. Sec. 142, Blk. 2, H. & T. C. Sur., elev. 2,222 ft.	Shut down 2,250 ft.
Danciger O. & R. Co.'s No. 1 Mrs. Byrnes, Clinton Sur.	Shut down 2,780 ft.
Lipan Oil Co.'s No. 1 S. M. Conner, Sec. 71, Blk. 2, H. & T. C. Sur.	Show oil 1,224-34 ft.; drilling 2,080 ft.
Lipan Oil Co.'s No. 1 E. C. Rawlings, Sec. 390, Blk. 1-A, H. & T. C. Sur., elev. 2,750 ft.	Fishing bailer 2,736 ft.
CONCHO COUNTY	
The Exploration Co.'s No. 1 Hartgrove, Blk. 240, J. Schouch Sur., elev. 1,718 ft.	Shut down 525 ft.
CRANE COUNTY	
Crane Dev. Co.'s No. 1 J. R. Mosley	Drilling 200 ft.
Marland Oil Co.'s No. 1 Union Land, E cor. of W Sec. 28, Blk. 35, H. & T. C. Sur., elev. 2,298 ft.	Top salt 825 ft.; 1,300 ft. sulphur water at 2,100 ft.; flowing sulphur water 2,265 ft.; plugging back.
Duffey & Gault & Brown's No. 1 Cowden	Hole full fresh water 620-25 ft.; top salt 895 ft.; drilling 2,685 ft., broken lime.
Gulf Prod. Co.'s No. 3 W. N. Waddell, SE cor. NE Sec. 3, Blk. B-25, Public School Land	New location; moving in tools.
J. K. Hughes Dev. Co.'s No. 1 State Bank Commission, CSL Sec. 18, Blk. 4, H. & T. C. Sur.	Location.
CROCKETT COUNTY	
George Anderson and Marland Oil Co.'s No. 1 University	Hole full sulphur water 1,800 ft.; ½ bailer oil 2,240 ft.; ½ bailer sulphur water per hour 2,475 ft.; shut down 2,631 ft.
V. T. Bolin & Co.'s No. 1 P. C. Coates, NW cor. SW Sec. 4, Blk. 2, I. & G. N. Sur.	Shut down 2,110 ft.

(Continued on Page 149)

Only Two Completions in Panhandle

But Three New Locations Reported in District, While Daily Average of Six Counties Shows Loss of 2,765 Bbls.

By Staff Correspondent

AMARILLO, Tex., Nov. 7.—One of the quietest weeks experienced in the Texas Panhandle since early in 1926 was the seven-day period just passed. Only two wells were registered as completions, one being a gasser in Carson County and the other a 100-bbl. producer in Hutchinson County. Only three new locations were reported, and the daily average output of the six counties in the Panhandle district dropped from 88,750 bbls. to 85,985 bbls., a loss of 2,765 bbls.

The Bowers Pool of Gray County had one new well which was showing the earmarks of a good producer. This was Majestic Oil Co.'s No. 2 J. B. Bowers, which flowed 750 bbls. from granite wash at 2,991-3,050 feet and was still drilling. It was reported as making a little oil last week, so it is not really a new addition, although it continues to show up better as it is drilled deeper into the pay.

Danciger Oil & Refining Co.'s No. 1 Jackson, east offset to the Majestic Oil Co.'s No. 2 Bowers, located in the NW cor. of Section 88, Block B-2, has been making about 1,200 bbls. daily from the granite wash pay. Last week the tubing was pulled and it started flowing 1,786 bbls. the first day after.

Several other tests in this area are getting down toward the interesting pay levels and some excitement can be expected there soon. Somebody has figured out that this Bowers Pool should be producing about 25,000 bbls. daily or more within the next 90 days. That amount, however, will probably just about offset the decline in Hutchinson County unless something breaks loose there. Something may be expected, too, from the Cockrell area of Hutchinson County, where Roxana Petroleum Corp. has an excellent producer.

In Sherman County, Gibson Oil Corp.'s No. 1 Lee Bivins, in Section 35, Block 3-B, attracted some attention when it struck its first gas showing at 2,980 feet and increased to approximately 4,000,000 feet of gas at 3,003 feet. The elevation of this test is 3,419 feet and top of lime was 2,550 feet. This well is about 12 miles northeast of the Marland Oil Co. and Hagy & Harrington test which was completed as a dry hole a few weeks ago, and which also found 3,000,000 feet of gas at 3,048-3,130 feet.

TEXAS PANHANDLE
Production of Major Companies for Week Ending November 5, 1927

Hutchinson County

Company—	Wells	Bbls.	Aver.
Amerada Pet. Corp.	10	343	34.3
Derby Oil Co.	11	533	48.4
Dixon Creek Oil Co.	43	3,423	79.6
Empire G. & F. Co.	26	831	32.0
Gulf Prod. Co.	98	5,793	59.0
Hughes, J. K., Dev. Co.	22	738	33.5
Marland Oil Co.	56	1,696	30.2
McMan O. & G. Co.	25	1,272	50.8
Midwest Exp. Co.	25	1,710	68.5
Pantex Oil Co.	9	595	66.1
Phillips Pet. Co.	245	18,203	74.2
Prairie & Phillips	73	3,013	41.2
Prairie O. & G. Co.	9	278	30.9
Prairie et al	9	930	103.3
Pure Oil Co.	5	559	111.8
Roxana Pet. Corp.	11	2,742	249.2
Skelly Oil Co.	29	959	33.0
The Texas Company	2	466	233.0
White Eagle O. & R. Co.	24	864	36.0
Total	731	44.948	
All other companies	279	16,377	
Grand total	1,010	61,325	

Carson County

Empire G. & F. Co.	8	626	89.4
Gulf Prod. Co.	21	315	15.0
Magnolia Pet. Co.	3	343	114.3
Marland Oil Co.	23	887	38.5
McMan O. & G. Co.	11	574	52.1
Prairie O. & G. Co.	10	922	92.2
Roxana Pet. Corp.	15	763	50.2
Skelly Oil Co.	10	1.440	144.0
The Texas Company	17	422	24.8
Total	118	6,282	
All other companies	43	1,363	
Grand totals	161	7,645	

Gray County

Empire G. & F. Co.	8	370	46.2
Gulf Prod. Co.	16	3,877	242.3
Humble O. & R. Co.	13	522	40.1
Magnolia Pet. Co.	22	725	33.0
McMan O. & G. Co.	10	338	33.8
Marland Oil Co.	1	45	45.0
Midwest Expl. Co.	1	85	85.0
Phillips Pet. Co.	7	325	46.4
Prairie O. & G. Co. et al	19	1,175	61.8
Pure Oil Co.	9	390	43.3
Roxana Pet. Corp.	5	401	80.2
The Texas Company	8	191	23.8
Wilcox-Pampa Oil Co.	30	1,530	51.0
Total	148	9.974	
All other companies	22	5,776	
Grand totals	170	15,750	
Total Panhandle	1,384	85.985	

WILDCAT OPERATIONS IN PANHANDLE

Week Ending November 5, 1927

ARMSTRONG COUNTY

Company, Well, Farm, Name, Section and Block— Remarks—

Meadows et al's No. 1 E. D. Harrel, C Sec. 100, Blk. A-6, A. & G. Sur. ....900 ft. wtr., 4,605 ft; S.D., 4,700 ft.

United Oil & Trust Co.'s No. 1 J. P. Reck, Sec. 162, Blk. 4, H. & G. N. Sur. ....Spudded and temp. abd., 298 ft.

BAILEY COUNTY

Gibson Oil Co. et al's No. 1 Webb Miller, NE cor. Sec. 15, League 186, Swisher County school land....Rigging up.

Humble O. & R. Co.'s No. 1 W. H. Fuqua, C E ½, Sec. 117, Blk. A, Melvin, Blum & Blum Sur. ....T.D., 1,413 ft; U.R. 10-in.

BRISCOE COUNTY

C. S. Rice's No. 1 J. C. Anderson, SE cor. NW NW, Sec. 22, Blk. B-3, B. S. & F. Sur. ....S.D., 1,620 ft.

CARSON COUNTY

Amatex Dev. Co.'s No. 1 E. S. Polling, Sec. 22, Blk. 2-Y..S.D., 2,110 ft.

Empire G. & F. Co.'s No. 5 Burnett est., C NE, Sec. 63, Blk. 5, I. & G. N. Sur. ....Drlg., 1,950 ft.

Empire G. & F. Co.'s No. 6 Burnett est., C NE, Sec. 62, Blk. 5, I. & G. N. Sur. ....Drlg., 1,810 ft.

Empire G. & F. Co.'s No. 8 Burnett est. ....Drlg., 1,000 ft.

Magnolia Pet. Co.'s No. 5 fee 244 ....Drlg., 2,995 ft.

Marston Oil Co.'s No. 1 J. L. Noel....S.D., 3,064 ft; fishing.

Navajo Oil Co.'s No. 1 E. S. Polling, Sec. 22, Blk. 2-Y Set 6-in., 2,496 ft; S.D., 2,712 ft.

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PANHANDLE COMPLETIONS

Hutchinson County

Phillips Petroleum Co. and Coble Oil Co.'s No. 28 J. A. Whittenburg was completed for 100 bbls. after a shot of 60 quarts at 2,905-27 feet. Roco Oil Co. abandoned No. 1 W. T. Hammond which had been spudded only.

Carson County

Empire Gas & Fuel Co.'s No. 4 Burnett, C NW Section 45, Block Y-2, H. & G. N. Survey, made 30.000.000 feet of gas at 2,325-2,480 feet, total depth 2,506 feet.

Wheeler County

Smith, Brady and others' No. 1 Sorenson was temporarily abandoned at 2,120 feet.

West Texas Production

Week Ending November 5, 1927
Crane County
Church-Fields-McElroy Pool

Company and Lease—	Wells	Bbls.
Church et al:		
University	1	100
Church & Fields:		
University	3	1,600
Duoil-Univ.	1	165
Eastland Oil and Collett:		
University	8	10,675
Gulf Prod. Co.:		
All leases	63	21,390
Humble O. & R. Co.:		
University	12	5,670
Independent O. & G. Co.:		
University-A	2	Off
University-B	1	*8
Landreth Prod. Corp.:		
Cowden-Anderson	16	14,000
Magnolia Pet. Co.:		
Univ.-Hardwicke	10	3,745
Univ.-O'Keefe	10	1,040
State-Lasseter	3	30
Magnolia Pet. Co. et al:		
Universi.y	4	65
Pecos Oil Co.:		
University	11	4,780
Prairie O. & G. Co.:		
University	6	*67
State-Lasseter	4	*4,720
Simms and Atlantic:		
University-A	9	5,180
University-B	1	35
University-C	8	*21,200
University-D	7	*4,505
University-E	1	275
Simms and Atlantic total	26	31,175
Stidham & Thrasher:		
Universi.y	1	11
The Texas Company:		
University	1	335
Univ.-Beasley	1	45
Tidal Oil Co. et al:		
University-B	2	65
University-C	1	40
University-E	1	90
University-F	7	*3,700
University-G	2	*460
University-H	3	33
University-I	4	*3,590
Tidal Oil Co. et al total	19	7,977
Church-Fields-McElroy total	203	107,479
Average per well		529

Miscellaneous Crane County

Gulf Prod. Co.:		
Waddell	1	25
Independent O. & G. Co.:		
Hughes	1	9
McMan O. & G. Co.:		
Hughes	2	75
Marland Oil Co.:		
All leases	16	931
The Texas Company:		
King	9	258
Union Land-F	1	4
Miscellaneous total	30	1,301
Grand total Crane County	233	108,780
Average per well		467

Crockett County

Cromwell et al:		
Powell	3	130
Cushing Ref. & Gaso. Co.:		
Powell	2	310
Gulf Prod. Co.:		
Powell & Thompson	7	690
J. K. Hughes Dev. Co.:		
Powell	5	235
Humble and Marland:		
Powell	9	275
Powell-B	3	610
Sorg	1	9
Republic Prod. Co.:		
Powell	2	100
Roxana Pet. Corp.:		
Powell	1	13
Taylor-Link and Kirby Pet.:		
Powell	1	185
Total Crocket County	34	2,451
Average per well		72

Ector County

The Texas Company-J. S. Cosden:		
Connell-A	1	12

Glasscock County

Texon and Marland:		
Settles	2	†

†Shut down for storage.

Howard County

Bristow & Merrick:		
A. J. Hooks	3	100
Comet Pet. Co.:		
H. R. Clay	2	24
Dixie Oil Co.:		
H. R. Clay	1	10
F. H. E. Oil Co.:		
John Roberts	1	75
Godley Oil Co.:		
A. J. Hooks	1	82
Gulf Prod. Co.:		
Chalk	1	18
Harrison et al:		
Dora Roberts	1	20
Humble O. & R. Co.:		
Douthit	2	35
Lockhart & Co.:		
Chalk & Scott	7	145
Magnolia Pet. Co.:		
All leases	36	2,055
Marland Oil Co.:		
All leases	32	1,060
Marland and Group 1 Oil:		
Harding	1	Off
Midwest Explo. Co.:		
H. R. Clay	2	54
Owens & Sloan:		
John Roberts	1	25
Pure Oil Co.:		
Chalk & Hooks	4	310
Reeves & Apperman:		
H. R. Clay	2	80
Sweeney et al:		
Chalk	1	130
Tidal Oil Co.:		
Otis Chalk	2	50
Total Howard County	100	4,273
Average per well		43

Jones County

Atlantic O. P. Co.:		
Howell	1	3
Marland Oil Co.:		
Mason	3	342
Midwest Explo. Co.:		
Thornton	4	184
Phillips Pet. Co.:		
Tessie-Walling	4	268
Joe Winter	3	273
R. M. Beasley	1	68
J. C. Mason	1	150
H. B. Vestal	1	84
Stebbins Oil Co.:		
Higgs	1	25
Total Jones County	19	1,387
Average per well		73

(Continued on Page 148)

Late News from the Fields

OKLAHOMA

The Greater Seminole area declined to 416,478 bbls. for the 24 hours ending Tuesday, November 8, at 7 a. m. The production was divided as follows:

Little River	43,398
Bowlegs	126,141
Earlsboro	158,047
Seminole	62,192
Searight	26,700
Total from 976 wells	416,478

In the Earlsboro Field, the Shaffer Oil & Refining Co.'s No. 6 Clark, NE cor. SE SW, Section 1-9-5, was completed in the Earlsboro sand 3,486-95 feet and swabbed 225 bbls.

The Amerada Petroleum Co.'s No. 4 Nitey, in the Little River Field, made 315 bbls. on the swab in 10 hours from sand 4,311-19 feet. This well is located NW cor. SE NE, Section 2-7-6.

EAST CENTRAL TEXAS

SHREVEPORT, La., Nov. 8.—The 25,000.000-foot gas show in Humble Oil & Refining Co.'s No. 2 Elliott, near Jacksonville in Cherokee County, Texas, has revived geophysical surveys of that entire country during the past 10 days. Magnolia Petroleum Co., Humble Oil & Refining Co., Gulf Production Co., Roxana Petroleum Corp., and others having shooting crews in the field. Gulf Production Co. has already started a well on its block a mile east of Bullard and is drilling below 600 feet and is shooting in northwestern Smith County.

Seismograph crews have been working in East Texas counties for several months and several favorable localities have been defined but the companies making the surveys have not started any elaborate drilling campaigns as a result of information obtained. At present Magnolia Petroleum Co. is shooting between Rusk and Ponton in Cherokee County; Roxana Petroleum Corp. and Humble Oil & Refining Co. jointly are shooting blocks they own adjoining each other between Tyler and Arp in Smith County and Roxana also is working independently in Cherokee County about 5 miles southwest of Jacksonville. Gulf Production Co. also did considerable work around Summerfield, 12 miles east of Jacksonville.

Some time ago Southern Crude Oil Purchasing Co. checkerboarded about 1,000 acres around Mount Selman but has not drilled it. During the summer Roxana Petroleum Corp. was shooting north and east of Palestine and around Jewett and Centerville in Leon County and in Nacogdoches County, defining a dome along Neches River in Smith County. It is understood it had options on all blocks surveyed but did not take any.

NORTH LOUISIANA

SHREVEPORT, La., No. 8.—The Texas Company Sunday got its second

(Continued on Page 148)

Dunn Safety Tubing Stop

A marvel of simplicity. Will work surely, instantaneously and infallibly. May be run in the hole as rapidly as desired without setting, thereby reducing off-production time to a minimum. When used in connection with our special anchoring attachment, as many of these devices as desired may be placed on the string with full assurance that all of them can be set simultaneously.

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Seminole Wildcats May Open Pools

Three Producers, Removed From Present Producing Areas, Change Situation. Pinched In Under Agreement

By J. L. Dwyer
Staff Correspondent, Oklahoma Fields

During a week of changing weather conditions, the situation in the Greater Seminole area corresponded very closely to the elements, and registered, successively, declines and advances. The finding of three separate and distinct new spots in the Seminole Field which will afford good production in the Wilcox sand, and drilling deeper a well in the Burbank Field with the resultant increase to 200 bbls. hourly, did much to dynamite the feeling of optimism which had just started to permeate the Tulsa atmosphere.

It is probably just as well that something happened to check the optimism, which was hardly justified, as had it been permitted to gain ground, the drill might have been put to work too rapidly.

The three new branches of the Seminole area will be pinched in according to the agreement of the operating companies which is effective until January 1, 1928. The wells will be permitted to flow 100 bbls. daily until such time as improved conditions are in evidence.

The shooting of the Seminole wells is just being felt in daily output, and many of the wells shot are now back on air after being off production for approximately 10 days. It is estimated that 90 wells have been shot, and during the period that they were off, the daily yield declined to 391,000 bbls. Since they have been restored to production, the field has increased to 423,000 bbls., with approximately 18,000 bbls. of this being directly traceable to shooting. New wells completed within the past 10 days account for 10,000 bbls., and the large increase in the results of the shooting was due chiefly to a few wells which responded heavily to the shots. The majority of wells shot in this area have increased very slightly, and it is reported that as a whole the result of shooting the wells has been disappointing.

Method of Production

The method of the Seminole wells production as of November 1 is as follows:

	Bowlegs	Earlsboro	Semi-nole	Sea-right	Little River
Air-gas lift	197	94	117	21	33
Natural flow	7	48	10	18	4
Pumping	15	33	143	12	6
Swabbing	20	35	32	5	7
Wells off	21	34	25	4	6
Total	260	244	327	60	50
Making water	51	64	108	15	13

Summary

Wells on air-gas lift	462
Natural flow	87
Pump	204
Swab	98
Wells off	90
Total	941
Wells making water	*251

*Increase of 30 wells in two weeks.

The water continues to invade the wells low on the structure, and the increase in pumping operations will be noted. A comparison in the number of flowing wells in the old Seminole Field and Bowlegs is interesting. The Seminole Field is 15 months old, and has 10 flowing wells. The Bowlegs Field is only nine months old and has seven flowing wells.

Three New Producing Areas

During the past week, three wildcat wells have opened new regions to the drill. The Independent Oil & Gas Co. and Highway Oil & Refining Co.'s well, in Section 23-7-6, 3 miles south of the Little River Field, was the first and it touched the Wilcox sand at 4,323-24 feet, and began flowing 100 bbls. an hour. This amount decreased to 90 bbls. hourly before the well was pinched in. This well is 1 mile east of the Barnsdall Oil Co.'s well in Section 22-7-6, which is believed to be in the top of the Wilcox sand. The region between these two wells will be given a thorough test at some future time.

The second important well was the Gypsy Oil Co.'s No. 1 Dosar, SE cor. NE, Section 7-8-6, which had the Wilcox formation at 4,455-56 feet, and flowed 130 bbls. an hour the first day. This well is 2½ miles west of the Bowlegs Pool. It will cause another drilling activity next year.

The third and possibly the most surprising well was a wildcat venture by the Mid-Continent Petroleum Corp., 2 miles east of the Little River Field. It is No. 1 Smith, NW cor. NE, Section 5-7-7, and had the Wilcox at 4,443-44 feet. It began flowing by heads and insufficient tankage was erected to take care of the oil. The flow is estimated at 50 bbls. an hour.

New Wells Shut In

All three of these wells have been shut in in accordance with the Seminole ruling. While the three of them constitute a menace to the stability of the crude market just at the time when it was strengthening noticeably, it must be remembered that the average drilling time of 100 days which is necessary to complete the Seminole wells will throw any large production which may be found into the spring of 1928 with its improved seasonal condition.

The production of the Greater Seminole Field on Sunday and Monday of this week was:

Pool—	Nov. 6	Nov. 7
Little River	46,355	45,671
Bowlegs	124,570	124,217
Earlsboro	162,422	161,653
Seminole	63,017	64,030
Searight	26,727	26,155
Total	423,091	421,726
From 970 wells.		

The daily average pipe line runs for the week ending November 7 from the Greater Seminole Field were 365,480 bbls., and an average of 11,750 bbls. was shipped out of the field by tank car.

In the Burbank district of Osage County, the new well of A. G. Oliphant and others, No. 3, NE cor. NE, Section 20-27-6, has been deepened from 2,900 to 2,940 feet, and the flow has increased to 200 bbls. an hour. The top of the regular Burbank sand in this well was 2,897 feet. The new output will give additional interest to the territory, and will stimulate interest in the coming public auction of Osage leases which is scheduled for December 6.

The production of the Greater Seminole oil field by companies and leases for the 24 hours ending Friday morning, November 4, is given below:

Little River

Company—	Wells	Prod.
Amerada:		
Fore	1	1,035
Nitey	3	2,920
Barnsdall:		
House, W. E.	.	....
Blackwell:		
Nitey	7	5,911
Carter:		
Fish	1	890
Continental:		
Cosar	1	1,250
Gypsy:		
Campbell	2	1,510
Nungee	1	15
Pottey	1	1,352
Wadsworth	1	....
Independent Oil & Gas Co.:		
Harris	1	78
Indian Territory:		
Dungan	3	3,609
House, M. A.	1	1,500
House, W. E. "A"	1	130
House, W. E. "B"	3	3,240
Jackson	3	3,884
McCulla	3	1,295
Nitey	5	4,026
Phoebe, "A"	1	979
Phoebe, "B"	3	1,425
Reed	1	694
Sokethecha	4	1,215
Mid-Continent:		
Wadsworth	5	1,950
Philmack:		
Davis	1	....
Prairie:		
Dungan	1	25
House	3	4,185
Roxana:		
Jimpsey	1	70
Superior:		
Wadsworth	1	31
Texas:		
Coker	3	870
Tidal:		
House	2	2,220
Johnson	1	150
Total	63	46,469

Bowlegs

Amerada:		
Rasco	8	4,390
Bradley	.	....
Atlantic:		
Baker	4	1,447
Fleet	4	1,316
Grayson	2	1,695
Jones, C.	3	178
Atlantic & Denver:		
Jones, A.	2	343
Barnsdall:		
McNac	1	40
Murrow	4	1,690
Carter:		
Bowlegs	3	1,560
Burden	2	470
Harjoche	6	1,110
Hilly	1	1,075
Jones	3	5,050
McGeisey	1	....
Walker	2	615
Wise	12	5,635
Empire:		
Lacy	6	975
Wise	2	1,240
Gypsy:		
Bowlegs	1	845
Bradley	1	....
Brown	1	100
Cumsey	4	687
Grayson	4	2,627
Jones	1	545
Walker	8	3,178
Wise	3	292
Independent-Marland:		
Coker	1	144
Indian Territory:		
Barnett	2	915
Billington	5	1,102
Bowlegs	11	1,767
Davis	4	4,234
Fay	6	5,575
Goforth	11	2,211
Hull	1	255
Livingston	11	6,687
Lizzie	2	409
Walker	8	1,705
Wilmont	4	1,999
Work	1	....
Youngblood	2	591
Magnolia:		
Davis	1	909
Hammond	2	372
McColloch:		
Bowlegs	3	396
Mid-Continent:		
Baker	4	2,940
Bowlegs	1	395
Hutke	1	2
Smith	1	75
Minnehoma:		
Bowlegs	4	800
Prairie:		
Gahagan	4	650
Harber	7	3,220
Jones	2	1,990
Templeton	4	5,120
Whitney	4	100
Pure:		
Reed	15	7,055
Strothers "D"	2	930
Strothers "E"	1	5
Strothers "F"	1	575
Roxana & Houston:		
Taylor	6	2,040
Shaffer:		
Lacy	2	807
Sinclair:		
Bowlegs	1	90
Cumsey	2	3,305
Ellen	6	3,870
Harjo	2	1,775
Jones	4	7,125
Taylor	4	3,315
Walker	4	1,450
Texas:		
Reed	9	7,007
Tidal:		
Grayson	2	1,620
Harjoche	5	2,335
Twin State:		
Jones	2	490
Total, Bowlegs	268	124,419

Earlsboro

Amerada:		
Anderson	40	3,815
Cowden	8	2,350
Rodgers	2	2,375
Barnsdall:		
Brown	4	3,722
Bruner, F.	1	949
Bruner, N.	9	4,050
Cudjo, C.	1	29
Davis, D.	3	1,730
Davis, J.	3	597
Davis, M.	3	1,471
Gibson	6	3,123
Hearn	1	....
Ingram	7	6,737
Pack	4	961
Peter	4	563
Sango	1	100
Sebolka	1	1,763
Sullivan, H.	2	1,130
Sullivan, Harjo	3	40
Wasutke	3	1,283
Carter:		
Davis	1	1,725
Payne	2	1,070
Sango	3	6,445
Continental:		
Kays	2	2,300

ONE COMPLETION IN CEDAR CREEK; SEVERAL WELLS BELOW SAND DEPTH

By Special Correspondent

MEXIA, Tex., Nov. 5.—One well completed in the Cedar Creek area summed up results in the East Central Texas Field. Several wells in that area are below sand depth and their only hope is in deeper drilling. The production of the Cedar Creek area for the week ending Wednesday was 625 bbls. per day from six wells.

The Why Not Oil Co.'s No. 2 E. W. Lewis, Varella Survey, Cedar Creek area, Limestone County, is a 150-bbl. pumper from sand at 2,891 feet, total depth 2,896 feet. Reiter, Lewis and others have started drilling No. 3 E. W. Lewis, and were drilling at 2,614 feet in No. 2 Lewis. The J. K. Hughes Development Co.'s No. 1 E. W. Lewis was drilling at 2,989 feet. Pipe was set at 2,877 feet. Transcontinental Oil Co.'s No. 2 R. P. Ward, Varella Survey, has sand at 2,896-2,902 feet which was tested and was found to be dry. Cable tools were rigged up and the well will be drilled deeper. The same company's No. 2 Dugger will be finished with cable tools after having been drilled to 2,898 feet with a rotary. The same company's No. 2 E. W. Lewis set casing at 2,912 feet after drilling into sand at 2,920-23 feet, and the crew was waiting for the cement to set. The Why Not Oil Co. was at 2,902 feet in No. 1 J. and A. Rhea, Varella Survey, fishing for a bailer. C. W. Harrison and others were drilling below 300 feet in a wildcat test on the Williams farm, Varella Survey. Reiter, Hicks, Hoover and others found a gas sand at 1,257-1,301 feet and was drilling below 2,150 feet in Val De Long, Varella Survey. Dillon & Hammond set pipe at 2,887 feet and were drilling at 2,931 feet in No. 1 Fenner, Haskins Survey.

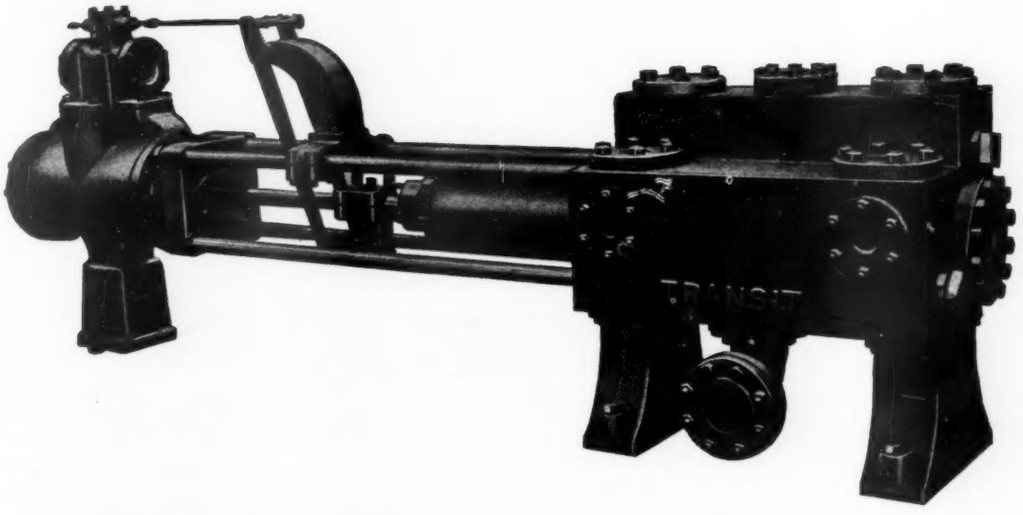
In Anderson County, Cosden and others' No. 1 Douglas, Simpson Survey, were drilling in lime at 4,620 feet. The Humble Oil & Refining Co.'s No. 3 Spencer Clemens was drilling at 600 feet. Same company's No. 1 H. T. Jones, Roberts Survey, was drilling at 2,560 feet. The Pure Oil Co. will drill No. 1 J. E. Cook, Lewellyn Survey and was rigged up at last report.

In Freestone County, the Orbit Oil Co. cored sand with a showing of oil at 3,300 feet in No. 1 Cleman, Howard Survey. Then salt water developed and the well was shut down.

In Smith County, the Gulf Production Co. spudded in No. 1 Mrs. Morgan, Moore Survey.

In Cherokee County, the Humble Oil & Refining Co.'s No. 5 Earl & Ragsdale, Johnson Survey, was drilling at 2,797 feet. The same company's No. 2 Elliott & Clarke will drill deeper. This test had a 12,000,000-foot gas production at 3,518-19 feet, corrected steel line measurement, which was shut off by lubricating, and the well will be deepened carefully.

No Monkey-Business



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Spencer	4	5,255
Crosbie:		
Bryant	2	2,825
Empire:		
Barker	1	....
Edmundson	3	2,623
Gypsy:		
Bruner	4	7,260
Carter	9	4,277
Earl	1	....
Hunick	1	670
McFarland	1	22
Noble	4	7,820
Peter	6	1,127
Sango	2	1,347
State	4	492
Independent:		
Bruner	4	2,832
Sullivan	4	145
Knapp	5	3,875
Gaines	2	9,395
O'Dell	4	885
Inter-Ocean:		
Payne	1	....
Magnolia:		
Bryant	5	2,233
Cowden	3	100
Dixon		....
Edmundson	2	904
Holmsley	6	3,586
Ingram	1	36
Lena	3	271
Seay	5	3,033
Simpson	4	598
Sparks	7	2,436
Sullivan	2	2,537
Mid-Continent:		
McCumber	7	1,055
Mid-Kansas:		
Anderson	3	750
Phillips:		
Dunnaway	1	30
Graham	7	702
Prairie:		
Baker	1	45
Davis	4	1,890
Graham, C.	2	760
Graham, O.	4	1,955
Stidham	13	6,965
Shaffer:		
Clark		321
Roxana:		
Bayliss	1	12
Spencer	2	1,185
Sinclair:		
Foreman	1	18
Hollins	3	1,600
Sango	1	2,865
Skelly:		
Spencer	2	3,020
Texas:		
Anderson	1	425
Brown	4	1,850
Rodgers	3	6,580
Wilmont	5	3,525
Tidal:		
Watkins	5	2,550
Twin State:		
Barker	4	1,092
Hearn	1	2,665
Total, Earlsboro	250	154,369

Seminole

Carter:		
B. Carter	2	225
J. Carter	3	50
F. Carter	3	190
Creamer	2	45
R. Cudjo	4	570
W. Cudjo	2	20
Gilliland	3	365
Grisso, M.	1	45
Grisso, W.	6	1,100
Knapp	3	290
Killing, M.	12	9,150
Killing, G.	4	1,070
Lukes	7	1,600
Ponder	2	50
Simpson	3	145
Strother	4	665
Vierson	4	300
Jackson	1	75
Amerada:		
Fixico	4	1,114
Killing	4	505
Rentie	3	904
Atlantic:		
Cudjo, N.	3	735
Barnsdall:		
Carter	8	2,626
Henry	2	638
Jones	4	950
Empire:		
Gross	3	400
Wilson	2	354
Gypsy:		
Butler	3	610
Carter	8	1,207
Cudjo	5	567
Fixico	7	195
Harjo	3	1,225
Wolf	6	207
Independent:		
P. Fixico	3	270
Harjo	3	610
Independent & Garland:		
T. Fixico	8	600
Independent & Inter-Ocean:		
Jones	4	572
Indian Territory:		
Allen	2	538
Bowlegs	12	3,093
Fleet	1	....
Gooden	4	261
Harjo	4	502
James	4	1,155
Reed	3	40
Kingwood:		
Johnson	3	1,156
Magnolia:		
Born	1	86
Franks	4	610
Mid-Continent:		
Rentie	9	1,030
Tayeche	7	400
Mid-Kansas:		
Pressley	1	10
Wilkins	2	355
Phillips:		
Strothers	2	183
Philmack:		
Butler	3	1,810
Prairie:		
Gross	5	75
Mason	1	....
Spencer	1	13
Strother	8	1,005
Pure:		
Strother, A.	17	3,502
Strother, B	6	2,691
Strother, C.	1	224
Roxana:		
Harber	2	310
Lashley	2	71
Sinclair:		
Carter	2	30
Cudjo, A	6	975
Cudjo, B.	4	955
Dicey	2	1,950
Fixico	4	865
Slick:		
Cudjo	3	619
Franks	8	1,480
Gilbert, Sam	3	2,682
Tiger	1	61
Superior:		
Cudjo	4	929
Texas:		
Mayhue	1	315
Strothers	2	105
Tidal:		
Carter	4	380
Fixico	6	522
Harjo, D.	3	860
Harjo, T.	6	250
Mahardy	2	195
Tayeche	1	21
Turman:		
Cudjo	4	811
Grisso	1	184
Jones	4	1,134
Total	324	64,577

Searight

Carter:		
Davis	7	3,085
Frazier	5	4,150
Kiker	1	30
Mandler	2	60
Scott	1	30
Amerada:		
Johnson	1	85
Strother	1	865
Gypsy:		
Cudjo	3	1,102
Mid-Continent:		
Grayson	6	860
Soloche	3	2,020
Pine:		
Lulla	1	30
Prairie:		
Cannon	1	15
Carter	1	....
Houck	1	5
Kincaid	5	85
Wiemer	1	15
Pure:		
Aldridge	5	4,915
Roxana:		
Strother	2	1,459
Sinclair:		
Polly	4	3,175
Twin State:		
Varnum	2	772
Wilcox:		
Chupco	6	3,790
Total, Searight	59	26,548
Total, Little River	63	46,469
Total, Bowlegs	268	124,419
Total, Earlsboro	250	154,369
Total, Seminole	325	64,577
Total, Searight	59	26,548
Grand total	965	416,382

Carter County

Atlantic Oil Producing Co. is building the rig for No. 1 Eason, NE cor. SE SE Section 19-1s-3w. Magnolia Petroleum Co.'s No. 2 Lewis, NE cor. NW Section 23-1s-3w, is pumping 164 bbls. from sand at 2,269-80 feet. Humble Oil & Refining Co.'s No. 2 Ratliff, SE cor. NW NW Section 29-1s-3w, was completed for 80 bbls. in a series of sands from 2,864 feet to 3,209 feet, total depth 3,256 feet. Magnolia Petroleum Co.'s No. 5 G. Cox, SE cor. SW NE Section 16-2s-2w, has been abandoned at 3,606 feet. No. 1 Miller, NE cor. SE NE Section 35-4s-2e, is dry and abandoned at 4,122 feet.

Creek County

C. O. Buckles and others' No. 1-A Cloud, SW cor. SE NE Section 22-18-8, is drilling at 495 feet. Tom Kelly's No. 1 Thomason, SW cor. SE SW NW Section 25-18-10, is spudding. A. E. Pursur and others' No. 1 Aubrey, SE cor. NW SE Section 23-18-11, is spudding. Alvord & West's No. 1 Tucker, SE cor. SW SW Section 14-17-8, is cleaning out to deepen below the old depth of 2,313 feet. Stover and others' No. 2 Hay, C SW NW Section 8-33-5, is a dry and abandoned hole at 720 feet. Shawver and others' No. 1 Johnson, SE cor. SW, Section 31-34-3e, has been completed for 2,000,000 feet of gas in sand 1,517-33 feet.

Greenwood County

Ritchey & Moore made location for No. 1 Pixlee, NE cor. SW, Section 4-22-10. Empire Gas & Fuel Co.'s No. 3 Demler, NE cor., Section 25-22-12, is a rig. The rig is also up for No. 4 Demler, NE cor., Section 25-22-12, the two rigs on the same 10 acres. The rig is being built for No. 2 Schwab, SE cor. NE NE, Section 25-22-12. Darby Petroleum Co.'s No. 1 Schwab, SW cor. NW NW, Section 30-22-13, is spudding. The rig is being built for No. 2 Schwab, NE cor. SW NW NW, Section 30-22-13. No. 3 Schwab, SW cor. SE NW NW, Section 30-22-13, is also a rig under construction. Federal Oil Co.'s No. 2 Storrer, NW cor., Section 30-22-13, is now rigging up. Location has been made for No. 3 Storrer, Lot 39, Section 30-22-13. La Rob Oil Co. has a machine at the location for No. 1 Winzler, Lot 47 North, Section 30-22-13. McCulloch and others are building the rig for No. 1 Perrie, Lot 20 South, Section 30-22-13. Shaffer & Howell built the rig for No. 1 Schwab, Lot 5 North, Section 30-22-13. Smalley & Bement Oil Co. made location for No. 1 Rockhill, NE cor., Section 12-25-10. Polhamus and others' No. 7 Taylor, SE cor. SW SW, Section 35-25-10, is drilling at 1,030 feet. Valley Osage Oil Co. has a machine on the ground for No. 1 Roglin, SW cor. SE, Section 30-25-13. Higgins and others have the rig on the ground for No. 1 Nickles, NE cor. SW NW, Section 3-26-10. Paul and others built the rig for No. 1 Hull, SE cor. SW SW, Section 3-26-10.

McCulloch and others' No. 1 Fankhouser, SW cor. NW NW, Section 29-22-13, is dry and abandoned at 1,960 feet. The Prairie Oil & Gas Co.'s No. 2 Boles, NW cor. NE NW, Section 15-22-12, was completed for 25 bbls. in sand 1,763-88 feet. Christy and others' No. 2 Dennis, NW cor. SW, Section 31-24-13, made 50 bbls. from sand 1,695-21 feet. Bisagno and others' No. 1 Roglin, SE cor. SW, Section 10-25-13, had sand 1,423-51 feet, drilled to 1,460 feet, was

(Continued on Page 136)

GAS WELL COMPLETED IN WINFIELD, KANSAS. OXFORD POOL IS EXTENDED

By J. L. Dwyer

Main street drilling has now spread from Oxford to other sections of Kansas, and during the past week Earl Wakefield and others have completed a gas well in Winfield, Cowley County, estimated at 1,000,000 feet per day. The new well, which is reported making connections with the present gas system of the city, is No. 1 Winfield, and found the sand 2,590-2,638 feet. It means a new gas field for Winfield.

In the Oxford district one well may extend the line of production across into Cowley County. It is Roxana Petroleum Corp.'s No. 1 Harness, SW cor. NW Section 30-31-3, just outside of Oxford. This well is underreaming the casing to the top of the Stalnaker sand at 1,941½ feet, and is believed to be running high.

Butler County

Mid-Kansas Oil & Gas Co. has the rig up for No. 1 Boline, NW cor. NE, Section 1-27-6. Burford & Brimm made location for No. 1 Ferris, SE cor. NE SW, Section 21-28-8. Roxenthal and others' No. 7 Shaffer, SE cor. NE SE, Section 4-27-6, has been completed for 200 bbls. in sand 3,160-68 feet.

Chase County

Westfield Oil & Gas Co. has moved a machine in for No. 4 Lipps, C SW NE, Section 25-18-6. Kewanee Oil & Gas Co. has a machine at the location for No. 2 Lipps, C NW NW, Section 36-18-6. Empire Gas & Fuel Co. and others have the rig on the ground for No. 1 Crosby, SW cor. SE NW, Section 24-22-9.

Cowley County

Barnsdall Oil Co. made location for No. 2 Thurlow "S", SW cor. SE NE, Section 7-33-3. The rig has been erected for No. 1 Patterson, SE cor. NW, Section 7-33-3.

Trees Oil Co.'s No. 1 Titsworth, SE cor. NW, Section 30-30-4, is dry and abandoned. Arkansas Fuel Oil Co.'s No. 5 Biddle, NW cor. NE NW, Section 7-32-5, has been shut in for 1,000,000 feet of gas in sand 653-58 feet. Blue Stem Oil Co.'s No. 2 Reynolds, SW cor. SE, Section 33-32-7, was completed for 5,000,000 feet of gas in sand 1,007-18 feet. Barnsdall Oil Co.'s No. 1 Thurlow "S", SE cor. NE, Section 7-33-3, came in for 500 bbls. in sand 3,479-90 feet. Klossie & Kitchell's No. 1 Baily, NW cor. SE.

tion 10-17-10, is drilling at 500 feet. Pontiac Oil Co. has put up the rig for No. 10 Fulson, NW cor. SW Section 13-17-10. Ted Ray Oil Co. has moved a rig to the location for No. 2 Littlehead, NE cor. NW NE Section 13-17-10. Grayhoma Oil Co. and others' No. 1 Vaughn, NE cor. SW NE Section 32-16-9, is drilling at 2,760 feet. Devonian Oil Co. has the rig on the ground for No. 5 Bigpond, SE cor. NW NE Section 36-15-7. Olean Petroleum Co. made location for No. 4 Bigpond, NW cor. SW NE NE Section 36-15-7. The Texas Company has a machine on the ground for No. 2 Sneed, C SW SE Section 7-14-9. Wood Oil Co.'s No. 1 Tye, NW cor. SE Section 25-14-9, is rigging up to deepen from 2,067 feet. Producers & Refiners Corp.'s No. 2 Harjo, SW cor. NE SE Section 18-14-10, is an old well rigging up to deepen below 2,900 feet.

The Texas Company's No. 2 Taylor, NW cor. Section 29-19-8, was completed for 1,500,000 feet of gas in sand at 2,627-2,711 feet. Continental Oil Co.'s No. 1 Narkarkey, NW cor. SE Section 25-18-11, is dry and abandoned at 2,389 feet. Pioneer Petroleum Co.'s No. 1 Behen, SE cor. NE NW Section 2-16-11, was completed for 30 bbls. in the Wilcox sand at 2,644-48 feet. Independent Oil & Gas Co.'s No. 2 Wolfe, C SW NE Section 18-14-10, has been shut in for 3,000,000 feet of gas in the Bartlesville sand at 2,330-97 feet.

Grant County

Kay Oil Co. made location for No. 2 Elswick, NW cor. SE SW Section 14-27-3w. Croxton & Bucklin made location for No. 1 Hodson, SE cor. SW Section 15-27-3w. Blackwell Oil & Gas Co. is building the rig to deepen No. 4 Lane, NE cor Section 22-27-3w, Deer Creek Field.

Kay County

Marland Oil Co. is rigging up a machine for No. 4 Gaylor, NE cor. SE SE SW Section 19-27-1w, Blackwell district. Larutan Fuel Co. is rigging up a machine for No. 1 Rembe, NW cor. Section 29-27-1w. Marland Oil Co. made location for No. 1-A Dickerson, NE cor. SE Section 17-29-1e. Location has been made for No. 2-A Dickerson, NW cor. NE SE Section 17-29-1.

Greer and others' No. 1 Lane, SE cor. NE NE Section 30-28-1, has been completed for 25 bbls. in sand at 3,352-79 feet. Marland Oil Co.'s No. 2 Taylor, SE cor. SW SW Section 19-27-1w, has been abandoned at 795 feet.

Lincoln County

Empire Gas & Fuel Co.'s No. 2-A Ward, NE cor. Section 33-17-4, has been abandoned at 750 feet. Texas Pacific Coal & Oil Co.'s No. 1 Betts, SW cor. SE SE Section 31-17-5, made 570 bbls. from sand at 4,183-4,228 feet. Magnolia Petroleum Co.'s No. 1 School Land No. 38, NW cor. SE Section 36-16-5, has been abandoned at 4,295 feet.

Okfuskee County

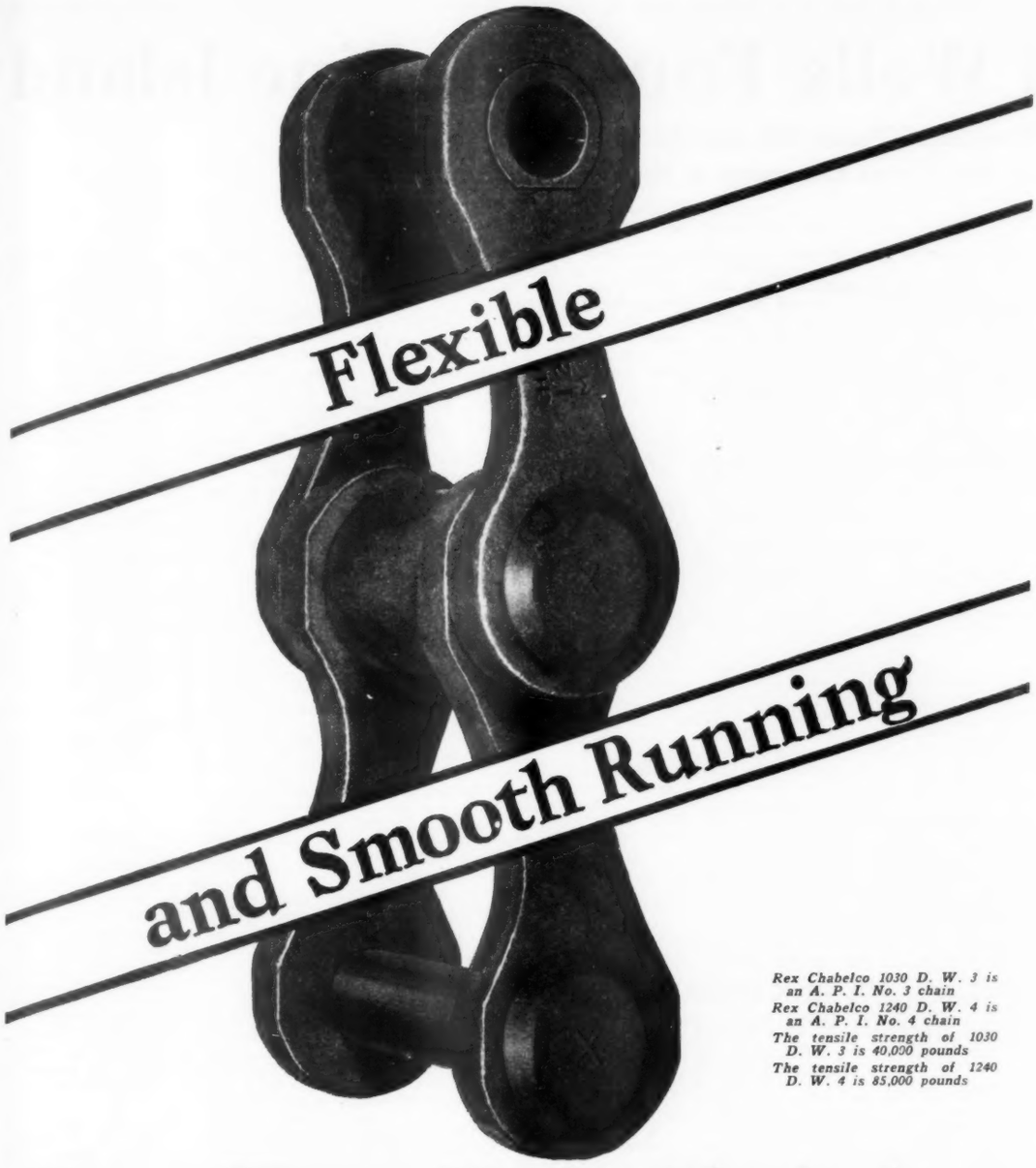
J. Burns has the rig up for No. 3 Cinda, SE cor. SW NE Section 12-12-10. Burke Greis Oil Co. has built the rig for No. 3 Deer, C NE SW Section 36-11-9. Schermerhorn Oil Co. and others are building the rig for No. 1 Dwyer, C SW NW Section 21-10-9. Empire Gas & Fuel Co.'s No. 1 Grayson, NE cor. NW NE Section 30-11-10, lost the hole at 3,180 feet and has been abandoned.

Osage County

Peters Petroleum Co.'s No. 3, CNL SE Section 22-27-11, is drilling at 1,475 feet. Phillips Petroleum Co. is building the rig for No. 2, SE cor. Section 17-27-6, Burbank Pool. The rig for No. 3, SW cor. SE SE Section 17-27-6, is also under construction. The rig is on the ground for No. 5, NE cor. SW Section 17-27-6. Kay County Gas Co. made location for No. 1, SE cor. SW Section 4-25-6. Kay County Gas Co. made location for No. 2, NE cor. SW Section 22-24-7. H. H. Mundy is rigging up a machine for No. 2, CWL E half W half SE Section 36-22-8.

Winona Oil Co.'s No. 2, SW cor. NW NW Section 17-29-11, made 5 bbls. from the Peru sand at 1,105-36 feet. Kewanee Oil & Gas Co.'s No. 7, SW cor. NE NW Section 34-27-6, Burbank Pool, was completed for 100 bbls. after a shot in the Burbank sand at 2,849-2,928 feet.

(Continued on Page 93)



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Fair Sized Wells Found in Pine Island

Deep Sand Yields 400 and 500-Bbl. Wells. Big Gasser of The Texas Company in Bossier. Many Failures

By D. H. Bancroft
Staff Correspondent, Louisiana-Arkansas

SHREVEPORT, La., Nov. 7.—Activities in proven territory in Louisiana and Arkansas the past week were without developments of particular interest save the completion of a 400-bbl. producer in the Pine Island deep sand by Haynes Brothers, their No. 2 Murray in Section 14-21-15 having been completed at 3,920 feet, and a 500-bbl. completion by The Texas Company in its No. 8 J. F. Herndon in the same section, total depth 3,665 feet.

Including two locations abandoned without drilling and one or two old tests that have been standing for months as temporarily abandoned, there were 28 completions in Shreveport territory during the week, 10 producers with 1,343 bbls. initial, 2 gassers with 22,000,000 feet initial open flow and 16 failures. Production showed a further decline of 1,915 bbls. in which both states suffered.

Late in the week American Controlled Oil Co.'s No. 1 Danier in Section 7-11-11, DeSoto Parish, was brought in swabbing 400 bbls. from 15 feet of sand at 2,720-35 feet but failed to stir up much interest because of the behavior of completions in that particular vicinity. In old territory, these wells come in like a million dollars but after they have cleaned themselves and been turned into the tanks they have about told their story and lapse into small pumpers.

Another well that failed to create much of a stir was Sebastian and others' No. 1 Pickering Lumber Co. on the T. F. Polley Survey near Shelbyville in Shelby County, Texas. Early in the week a report reached town that it had a show of oil sufficient to fill the pit, but having had experience with East Texas completions before the fraternity refused to get excited. The well, 12 miles west of Pleasant Hill production in Sabine Parish, and the same distance south of Logansport, made the usual East Texas show at 2,029 feet, the only difference being that the sandy shale from which the showing came was found considerably higher than in the average well in that locality. The hole caved after coming out with core barrel and no test has been reported in prospect.

Good Gas Wells

Of far greater interest was The Texas Company's completion of No. 1 Wilkinson, Section 36-23-12, in the southeast corner of Cartersville territory of northeastern Bossier Parish, some figuring that it should develop as an oil producer. Its slight extension of proven area, therefore, was not unmixed with a certain amount of disappointment when it was completed at 3,073 feet with 2 feet of sand as a 23,000,000-foot dry gasser. Initial rock pressure of 1,270 pounds is rather more than the average. Cartersville had a second completion in northwest Louisiana Gas Co.'s No. 1 Mays, Section 32-23-12, with 8,000,000 feet of gas at 1,100 pounds pressure from 3,091 feet.

The Pine Island deep sand area listed three completions and an abandoned location by the Gulf Refining Co., which has cancelled the drilling of No. 11 J. H. Herndon in Section 15-21-1. In addition to the Haynes Brothers and The Texas Company wells, which were among the best of recent completions, The Texas Company completed No. 9 J. F. Herndon in Section 14-21-15 as a dry gasser making 45,000,000 feet from 3,585 feet.

Double II Oil Co. made a salt water test in its No. 7 Watkins & Lane, Section 27-21-15, a shallow well abandoned at 1,700 feet.

The Vivian district of Caddo had two completions, both by the Standard Oil Co. No. 1 J. J. Hart, Section 34-21-16, is pumping 30 bbls. from 1,832 feet, and No. 53 Helpman in Section 16-21-16 was abandoned on account of salt water at 1,922 feet.

In the Oil City district one of the oldest, if not the first producing lease in Caddo, developed a small pumper in Bethany Oil & Gas Co.'s No. 1 Offenhauser, which is making 10 bbls. of oil with 50 bbls. of salt water from 2,270 feet. Location of this well is not far from the first of the three wells drilled in 1905-06 by Savage Brothers of Beaumont, who were the first to drill in Caddo.

Elbert Petroleum Co. put No. 5 Urania, Section 7-10-2e, LaSalle Parish, in the north end of the Urania Field, on the beam for 75 bbls. from 6 feet of sand at 1,518-24 feet.

Only one completion, and it a failure, was reported from the Richland Parish gas district, Texas-Louisiana Carbon Co. giving up attempts to retrieve drill stem and abandoning No. 1 Broughton, Section 1-16-6e, as junked, total depth 2,910 feet.

Arkansas Completions

Nevada County, Arkansas, where J. J. O'Brien is about the only operator active in proven territory, furnished all but 8 bbls. of Arkansas' 320 bbls. of new production. Humble Oil & Refining Co. completed No. 2 Fairchild, Section 6-14-20, making 45 bbls. on the beam from 1,197 feet and O'Brien got the other three of the county's four completions. His 4-B Haynie in Section 1-14-21 is pumping 100 bbls. from 1,159 feet. No. 5-A Moss, in the same section, is pumping the same amount from 1,140 feet and No. 9-G Moss, also in Section 1-14-21, is pumping 75 bbls. from 1,157 feet.

Smackover yielded the remaining four completions in Arkansas proven territory, three of them junked holes and the fourth, Smitherman & McDonald's No. 2-A Saxon, Section 32-15-16, Union County, pumping 8 bbls. from broken sand at 2,230-53 feet. F. A. Book's No. 3 Johnette, Section 33-15-16, Ouachita County, standing temporarily abandoned at 2,280 feet after a dry test August 24, has been dropped from field reports. Owenwood Oil Corp. lost three joints of drill stem in No. 4 Snyder, Section 34-15-15, Ouachita County, and abandoned the hole at 2,005 feet. Standard Oil Co. abandoned No. 33 Murphy, Section 4-16-15, Union County, at 2,586 feet. The Smitherman & McDonald well is a second completion, having been a 300-bbl. initial producer at 1,946 feet September 20, 1923.

Production Falls 1,915 Bbls.

About two months ago Arkansas' daily average runs from the field, due to a drop of several thousand barrels in Smackover heavy oil runs, fell below 100,000 bbls. for the first time in four years, recovering most of that slump in intervening weeks until the week just closed when they again crossed below the line. Arkansas' runs for the week averaged 99,040 bbls., compared to 100,080 the week before. Louisiana districts also fell short of last week's average runs, the total being 49,935 compared to 50,975. Total runs in the Shreveport group were 149,040 bbls., compared to 150,955, a difference of 1,915 bbls., in which north Louisiana and Arkansas pools shared about equally, the former declining 940 bbls. and the latter 975.

Diminishing runs from Pine Island contributed largely to a decline of 490 bbls. in Caddo light oil shipments and the natural falling off of Sabine producers accounts for a decrease of 365 bbls. from Pleasant Hill district. Red River-DeSoto runs were off 235 bbls. Smackover light oils average is 210 bbls. under last week's and movement of the heavy grade during the week was 690 bbls. under last week's figures. Changes in the other producing districts were, with three exceptions, differences of 5 to 10 bbls. up or down. Caddo heavy oil runs declined 45 bbls., Elm Grove 15 and Lisbon 85. Daily average runs from the several districts this week and the week before were:

	Nov. 5	Oct. 29
North Louisiana		
Caddo light	12,170	12,665
Caddo heavy	4,725	4,670
Homer	4,730	4,720
Haynesville	7,160	7,150
DeSoto-Red River	3,715	3,950
Elm Grove	660	675
Bellevue	1,210	1,215
Cotton Valley	5,160	5,145
Urania	9,165	9,170
Pleasant Hill	1,250	1,615
Total	49,935	50,875
Arkansas		
El Dorado	6,115	6,110
Lisbon	2,895	2,980
Smackover light	9,535	9,745
Smackover heavy	76,225	76,915
Stephens	1,205	1,210
Nevada County	3,025	3,020
Bradley County	105	100
Total	99,105	100,080
Total both states	149,040	150,955

LOUISIANA-ARKANSAS COMPLETES NINE WILDCAT FAILURES IN WEEK

By D. H. Bancroft

SHREVEPORT, La., Nov. 7.—Failure of Jenson, Rogers & Gibson's No. 1 Hale & Rumbaugh, Section 17-18-11, Bossier Parish, Louisiana, tested at 1,257 feet early in the week, concluded a series of three wildcat tests the outcome of which has been awaited with considerable interest and has directed attention to other wildcats scattered through the territory. Only one of these, and it not strictly a wildcat paid off. The Texas Company's No. 1 Wilkinson in Section 36-23-12, Bossier, being a 23,000,000-foot gasser at 3,073 feet. The Jensen, Rogers & Gibson well, between 3 and 4 miles south of The Texas Company gasser, was dry in 3 feet of sand at 1,221-24 feet and again at 1,250 feet. Third test at 1,257 feet was salt water and the hole is abandoned. A week previous Sales & Walker tested salt water at 3,083 feet in No. 3 Bollinger, Section 30-23-11, Bossier, after appearance of 2 or 3 inches of oil in the pit had raised great hopes of a producer.

Seven other wildcats, three in north Louisiana and four in Arkansas, were abandoned during the week. In the White Sulphur district of LaSalle Parish, 25 miles south of Urania production, Tunica Petroleum Co. tested dry and abandoned No. 40 L. & A., Section 15-7-2e, at 1,042 feet, a deep test for that locality, where Tunica has completed a half dozen wells at around 700 feet, which pumped 5 to 10 bbls. for a while and an equal number of salt water holes at the same level. The same company began drilling, set casing and abandoned No. 41 L. & A., Section 5-7-2e, all in a week's time, testing dry at 767 feet. The other Louisiana wildcat was Lawson & Pharris' No. 3 Clark-Morse Lumber Co. in Section 25-5-6, Natchitoches Parish, abandoned without a test at 1,562 feet.

A. C. Glassell and others of Shreveport, abandoned No. 1 Keller, Section 10-19-5, Ashley County, Arkansas, at 3,116 feet without further test after passing through gas rock at 2,844-48 feet.

F. R. Maier and others, who had derrick up but never drilled No. 1 Gantt, Section 15-17-22, Columbia County, abandoned the location on which derrick was blown down in a windstorm several months ago. Wingfield and others drilled 2,804 feet without testing anything but fresh water at 1,000 feet, moved rig from No. 2 Bodcaw, ection 4-20-21, Columbia County, which had been standing since June 22. They also abandoned No. 1 Bodcaw in the same section which was listed March 16 as temporarily abandoned at 2,025 feet.

The Champagnolle district of Union County, Arkansas, and Richland Parish, Louisiana, are dividing most of the attention being given wildcatting, which activity is at about as low an ebb as it has been in the past seven years, as indicated by the fact that there are only 188 operations under way in North Louisiana and Arkansas, including proven and wildcat areas. Of these, 8 are shut down waiting on standard rig, 8 temporarily abandoned, 126 drilling, 12 rigging up, 22 derricks and 8 locations, as of the November 3 field summary by one of the major companies. This report, however, does not cover East Texas counties along the state line nor several counties in southern Arkansas.

Nine operations are under way in the Champagnolle district, Ohio Oil Co. having made location for a new well, No. 5

(Continued on Page 123)

NORTH LOUISIANA

Bossier Parish

Carterville—Bahan & Davis' No. 1 Dodson, Section 15-23-12, having about 300 feet to go before reaching the pay, is drilling at 2,700 feet. Magnolia Petroleum Co. has rig up on No. 1 D. W. Roberson, Section 26-23-12, and has cemented 8¼-inch casing at 3,069 feet in No. 1 Zula Roberson, Section 23-23-12. O'Brien Brothers' No. 1 Dodson, Section 22-23-12, is drilling at 1,280 feet. Woodley & Collins and Atlantic Oil Producing Co.'s No. 3 L. & A., Section 15-23-12, are drilling at 2,290 feet.

Bellevue—Not listed this week as a producer, R. L. Crook's No. 8 Larkin, Section 14-19-11, set 8-inch casing at 378 feet, drilled plug and is shut down waiting on standard rig, estimated good for 5 bbls. on the beam at 386 feet. Humble Oil & Refining Co.'s deep test, No. 30 Bliss & Wetherbee, Section 15-19-11, is drilling shale at 4,363 feet.

Sligo and Elm Grove—J. S. McCullough, trustee, set 10-inch casing in No. 4 Hodges, Section 25-16-12, at 200 feet and is drilling at 860 feet. R. O. Roy's No. 1 Werner, Section 7-17-11, is still a derrick while Sligo Syndicate has set 8⅝-inch casing at 1,694 feet in No. 2 Smith, Section 24-17-12.

Caddo Parish

Pine Island—Arkansas Fuel Oil Co.'s No. 2 Bashara, Section 23-21-15, is drilling at 3,885 feet, deepening after testing an estimated 4,000,000 feet of gas with a show of oil and salt water at 3,635 feet. Arkansas Natural Gas Co., which completed No. 1 C. W. Lane, Section 13-21-15, as a 45,000,000-foot gas well at 3,613 feet, May 6, 1926, has rigged up to deepen and is drilling at 3,630 feet. Bussa and McGoldrick are bailing for a shallow test in the Nacatoch at 1,604 feet in No. 7 J. D. Bickham, Section 23-21-15.

Dixie Oil Co. is drilling No. 9 Clark, Section 14-21-15, at 2,120 feet; No. 9 Caddo Mineral Lands, Section 23-21-15, tested dry at 3,596 feet and is drilling at 3,670 feet; No. 91 Dillon, Section 14-21-15, is still a derrick; location has been made and derrick is up for No. 92 Dillon, 2,065 feet south and 335 feet east of NW cor., Section 13-21-15; No. 4 H. H. Huckaby, Section 11-21-15, began

(Continued on Page 125)

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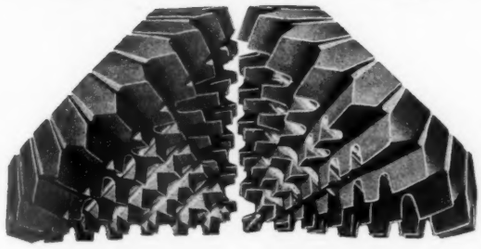

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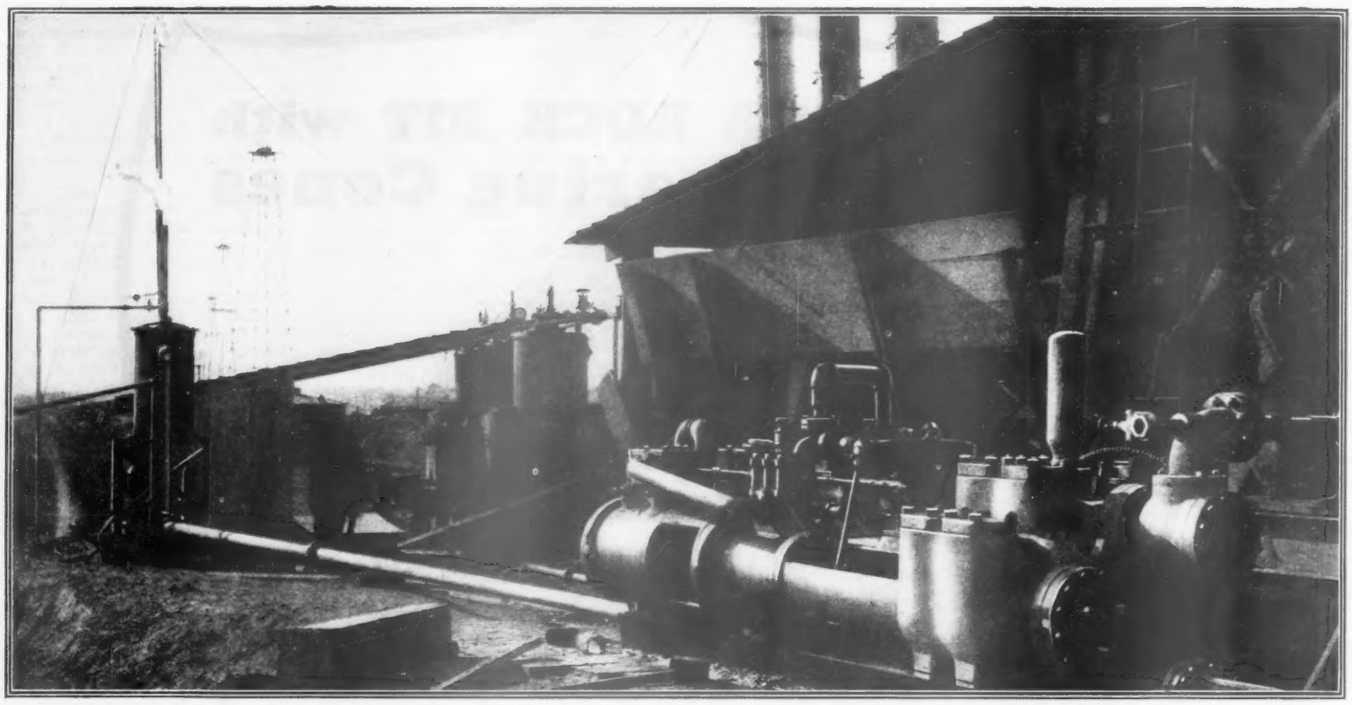

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8139-1

Magnolia Well Extends Gas Field

Initial Production 2,000,000 Feet, but Gassers in This Part of Southwest Texas Show Increased Flow Later

By B. D. Stevenson
Staff Correspondent, Southwest Texas Fields

SAN ANTONIO, Tex., Nov. 7.—Two gas wells in the new 3,300-foot sand in the Refugio Field in Refugio County on the Gulf Coast are making so much oil that it is necessary to put in separators. It is estimated that about 10 bbls. of oil will be recovered from each well.

There have been more or less minor showings of oil in that field but for the most part the wells have been dry gas. Houston Gulf Gas Co.'s No. 4 and No. 6 Shelly are each making considerable oil and separators are being put in. No. 6 was the discovery well in the new sand and was completed at 3,303 feet. No. 4 was completed in sand at 3,311-20 feet, having been deepened from a shallower sand where it had made a producing gas well. No. 4 had a shut-in rock pressure of 1,250 pounds to the inch. It is probable that there will be still deeper drilling in the Refugio Field.

The No. 6 Shelly was expected to go much deeper than it did but it unexpectedly picked up a good sand. The field has thus far proved up so many producing horizons, with the deepest one at only 3,300 feet, that with geologists asserting there are possible productive formations far deeper than it will be possible to drill, it seems the part of wisdom to keep going down.

Adams Field Extended

Magnolia Petroleum Co. last week extended the Adams gas field in Medina County a half mile or more to the north when it brought in the No. 1 Joseph Keller in Andrew Northington Survey, 630 feet to the north and 150 feet to the west lines of the Keller farm at 1,026 feet and good for 2,000,000 feet of gas. The volume is a little small initially but the wells in that field always increase after being on production for a time. It is the farthest northeast producer in the field and over a half mile east and a little north of the nearest producer on a Southern Gas Co. lease which in turn had extended the field about three-quarters of a mile to the northeast.

Witherspoon Oil Co. last week completed the Nixon No. 4 as a 4,600,000-foot gas well making dry gas at the southwest end of the field and 20 feet from its No. 2 which blew out and cratered. The No. 2 was finally killed and the completion of the No. 4 indicates that the southwest end of the field has not been injured by the blowout. Two other gas wells were completed in the field last week, one for 11,000,000 feet by Witherspoon and one for 5,000,000 feet by the Southern.

One rather important completion was made in the Laredo district, by Killam, in Survey 585 at the south end of the Cole Field, making 6,000,000 feet of gas at 2,706-9 feet, which extends the field. Also in the Andrews Pool in the Mirando district in Webb County, where only gas has been produced thus far, R. M. Strum has a well showing for about 250,000 feet of gas and making some oil. Depth is 1,627-39 feet. There has been a lot of drilling around in that area in times past trying to pick up oil production and extend the field on south from the Aviators and make it join up with the old Mirando Valley Pool. No one would be much surprised if eventually these efforts should succeed.

The oil well drilled by the Mexican Government about 20 miles south of the Rio Grande, proved to have nothing more than a right good showing of oil. It is more than enough, however, to encourage additional drilling. The well was reported several weeks ago as looking as though it would make a producer at the time when a drill stem tester was put on it and it partly filled up with oil. Later when casing was set some oil was bailed out, but it made mostly water.

Duval County

O. W. Killam's No. 2 Bruni, Survey 585, south of both the Cole Pool and O'Hern & Seacord wells at 2,706-09 feet is a gas well estimated at 6,000,000 feet.

Jim Hogg County

Magnolia Petroleum Co.'s No. 30 Merchants State Bank, Survey 415, Randado Field, at 1,238 feet is a 60-bbl. well.

Webb County

Magnolia Petroleum Co.'s No. 10 Garcia, Survey 58, Schott Field, at 1,562 feet is a 10-bbl. well.

Newton Drilling Co.'s No. 2 Burni, Block 64, in the Albercas, location, has been abandoned.

New Locations

O. W. Killam's No. 3 Bruni, Survey 585, Duval County, is ready to spud in.

Ed Mims and Sam Evans' No. 1 Hinnant, Survey 10, Block 9, in the Mirando Valley Pool, in Zapata County, has derrick up.

Magnolia Petroleum Co.'s No. 31 Merchants State Bank, Survey 415, Randado Field in Jim Hogg County, is moving on.

T. G. Shaw's No. 1 Jones, Survey 381, Block 22, Jim Hogg County, wildcat, is rigging up.

Caldwell County

Humble Oil & Refining Co.'s No. 4 Clingensmith, Squire Damon Survey, in the Dale Field, at 2,215 feet swabbed 90 bbls. daily.

Medina County

Magnolia Petroleum Co.'s No. 1 J. Keller, Survey 8, in the Adams gas field, at 1,026 feet is gas well of 2,000,000 feet with rock pressure of 465 pounds and extends the field to the east.

Southern Gas Utilities, Inc.'s, No. 4 Nixon, Block 13, in the same field at 905 feet is 5,000,000-foot gas well.

Witherspoon Oil Co.'s No. 5 Nixon in Survey 63, Adams gas field, at 923 feet is 11,000,000-foot gasser; No. 4 Nixon, Survey 119, is gas well of 4,600,000 feet.

Abandoned Tests

Humble Oil & Refining Co.'s No. 3 Clingensmith, Squire Damon Survey, Dale Field in Caldwell County, at 2,656 feet has been abandoned dry; No. 1 Dinges, Squire Damon Survey, has been abandoned dry at 2,294 feet.

Houston Oil Co.'s No. 1 Kissman, Section 41, Block 9, in the Kingsville Field in Kleberg, has been abandoned at 3,200 feet.

W. L. Pearson has abandoned location of No. 1 Rotge, 8 miles southwest of the Kingsville Field, in Kleberg County.

Campbell and others' No. 1 Peyton in Travis County, has been abandoned at 807 feet in chalk.

Johnstone & Hout's No. 1 Whipff in Maverick County, 9 miles from Eagle Pass, has been temporarily abandoned at 1,365 feet in blue shale.

New Locations

Sun Oil Co.'s No. 1 Washburn, Survey 157, La Salle County, is location 3,500 feet to north and 3,400 feet to west lines and is rigging up.

Green & Shall are to drill a well on the Dubose land in Gonzales County.

Houston Oil Co.'s No. 3 Kissman, Kingsville Field, in Kleberg County, is location, Section 41.

D. C. Holmes' No. 1 Shaw is drilling at 80 feet in Atascosa County south of the proven area in the Somerset Field.

Witherspoon Oil Co.'s No. 6 Nixon, Survey 119, in the Adams gas field in Medina is location.

T. P. Garrett's No. 1 Rowe, R. Hornsby Survey, Travis County, is location 900 feet to north and east lines.

Cole Gas Field—Duval

O. W. Killam's No. 8 R. Benavides, Survey 11, Block 6, located 585 feet to northwest lines and 150 feet to southwest lines, is drilling at 2,925 feet; No. 2 Bruni, Survey 585, at 1,090 feet to west line and 10 feet to north line, is testing sand at 2,706-09 feet. Houston Oil Co.'s No. 2-A Bruni, Survey 10, Block 48, located 200 feet to northwest lines and 150 feet to northeast lines, is drilling in shale at 860 feet; The Texas Company's No. 1 Benavides, cor. of Blocks 339, 340, 341 and 342, has set 10-inch casing at 55 feet. Cole Petroleum Co.'s No. 50 Benavides, Survey 5, Block 7, located in Cuellar grant, is rigging up.

Piedras Pintas Dome

Humble Oil & Refining Co.'s No. 7 Walsh, Survey 185, located 2,050 feet to east line and 1,750 feet to north line, is in sand and shells at 3,793 feet.

Randado Field—Jim Hogg

Magnolia Petroleum Co.'s No. 30 Merchants State Bank, Survey 415, located 1,600 feet to west line and 1,890 feet to north line, is on sand at 1,237 feet and set casing.

Alworth Pool

Alworth-Stevens-Hild's No. 1 M. Garza, Survey 39, Block 6, is location 1,150 feet to southwest lines and 1,410 feet to southeast lines; No. 2 M. Garza is location 360 feet east of Garza tract of 27 acres in Survey 606 and 87½ feet northeast of east corner of Block 5, Survey 39.

Schott Field—Webb

Magnolia Petroleum Co.'s No. 10 Garcia, Survey 58, located 825 feet to west line and 1,040 feet to north line, is testing at 1,560 feet.

Albercas Field

O. W. Killam's No. 7 Bruni, Block 65, located 1,050 feet to east line and 150 feet to north line, is drilling at 2,100 feet. Newton Drilling Co.'s No. 2 Bruni, Block 64, is location 600 feet to west line and 1,470 feet to south line.

Carolina-Texas Field

D. J. Simmons' No. 2 de la Garza, Survey 335, Block 6, located 150 feet to south and west lines, is standing at 400 feet. Houston Oil Co.'s No. 3 S. Benavides, Survey 683, located 350 feet to north line and 1,470 feet to east line, has set 12-inch casing at 130 feet.

Andrews Pool

R. M. Strum's No. 1 Lopez, Survey 309, located 1,000 feet to NW cor. and 250 feet to north line, at 1,580-85 feet tested dry and is fishing for swab left in the hole.

Cole Gas Field No. 2

Cole Petroleum Co.'s No. 36 Benavides, Survey 412, Block 14, located 159 feet to east line and 266 feet to north line, has resumed drilling at 5,199 feet.

Mirando Valley Pool—Zapata

O. W. Killam's No. 2 (5) Hinnant, Survey 74, located 1,980 feet to west line and 2,500 feet to south line, is drilling at 1,650 feet.

Luling Field—Caldwell

Magnolia Petroleum Co.'s No. 18 Rios, John Henry Survey, 150 feet to SW cor., is drilling at 1,840 feet; No. 19 Rios, same survey, in northeast corner, is location; No. 6 Branyon, James Berry Survey, is location 425 feet northeast of No. 5. North & South's No. 1 Kelly is drilling at 7,230 feet in schist; No. 2 Tiller is also drilling in schist at 6,780 feet.

Dale Field

The Texas Company's No. 3 Beatty, Nich Kelly Survey, has derrick up, 150

(Continued on Page 121)

TEST IN NORTHWESTERN DUVAL COUNTY LOOKS LIKE PRODUCER

By B. D. Stevenson

SAN ANTONIO, Tex., Nov. 7.—As this was being written the Schlessinger Corp's No. 1-A Moody in the northwestern part of Duval County, far removed from any production, was being bailed and since it had quite a showing of oil it is quite possible for it to be a well. Total depth is 2,401 feet and the No. 1 Hahl, drilled on an adjoining section, had a good showing at about the same depth, but not quite enough to make a commercial well considering the depth.

The No. 1 Moody was lost through mechanical troubles after it had considerable oil and looked like a producer. No. 1-A Moody was drilled a short distance from No. 1 in the northwest corner of Section 60, 10 miles from the west line and 13 miles from the north line of Duval County and 25 miles up the Reynosa Escarpment to the northeast of the Carolina-Texas Field, which is the nearest production. Everyone familiar with the well is rather looking to see it make a producer. Half way between it and the Caroline-Texas Pool is where Humble on the Kohler ranch has been able to get a small amount of production in two wells and is trying to develop a field.

C. W. Simpson's No. 1 Ideus in the northern part of Goliad County, a pure wildcat proposition, has had its fifth gas showing and is attracting attention. It made a Halliburton drill stem test at 1,903 feet and while it showed gas, had too much water to make a gas well. After a streak of gumbo it had limey shale at 1,922-25 feet and back in gumbo is drilling at 1,982 feet. It seems to be on structure and has been having gas sands at more or less regular intervals or breaks and will get closer watching from this on as the log seems to be running high.

Another wildcat that is getting attention is the Empire Southern's No. 2 Smith, west of Cuero in DeWitt which at 2,960 feet is showing some gas and a little oil. It sanded up so much that a complete test has not been made and the liner is being pulled and will be reset and another attempt made to bring it in.

Sun Oil Co. is moving a rig to the Washburn ranch, part of which is in McMullen and part in La Salle County, and the test will be in La Salle County in the west part of the ranch. Sun has been core drilling in that territory for several months making shallow test to get the subsurface geology before starting to drill and the location is the result of the core drilling. Sun is also moving two rigs to the north part of Washington County near Gay Hill to drill on the Clay Creek Dome 9 miles north of Brenham and on Yegua Creek, the two tests being more than 200 miles apart.

Brooks County

The Texas Company's No. 3 Lasater, Survey 329, located 2,380 feet to north line and 450 feet to west line, has hard sand at 4,383 feet.

Duval County

Schlessinger Oil Corp.'s No. 2 Moody, Survey 60, located 155 feet to north line and 1,650 feet to east line, is drilling at

(Continued on Page 121)

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New Salt Dome in Coastal Louisiana

Spindletop Has Biggest Initial Producer of Week. Hull Pool Has Another Good Well. Blue Ridge Most Active

By Staff Correspondent

HOUSTON, Tex., Nov. 7.—New salt dome production was discovered in coastal Louisiana Saturday night when Calcasieu Oil Co.'s No. 2 Caldwell came in making 1,000 bbls. of 22 gravity pipe line oil through a three-eighths inch choke. The well is producing from 25 feet of sand topped at 3,971 feet. According to Harry C. Hanszen, president of the Calcasieu company, the well is owned jointly by the Calcasieu company, Magnolia Petroleum Co., and Union Sulphur Co., and the Calcasieu company is operating the property. The companies own a 2,500-acre block solid. The well is 3 miles from the old Hackberry Dome where a flock of wells, approximately 60, were drilled and only a few showed oil.

No. 2 is located 200 feet east of No. 1, which blew out at 4,016 feet wrecking the derrick and finally caught fire and was abandoned. No. 2 is along the north line of irregular Section 37-12s-10w.

East Hackberry Dome is another dome located by seismograph. The owners discovered the dome January, 1927. The well is approximately three-quarters of a mile from the west shore of Lake Calcasieu and 2½ miles from the deep water channel to Lake Charles. No pipe line connections are available and the oil is going to earthen storage. Small craft can navigate a small bayou running close by the side of the well. Production will probably be shipped out of the new area unless it proves more prolific than expected.

Big wells brought in at the week end featured developments in the coastal district while production showed a slight increase.

In Spindletop Yount Lee Oil Co.'s No. 45 McFadden proved to be the biggest initial producer completed during the week. The well was completed at 2,650 feet flowing 3,600 bbls. of 31 gravity pipe line oil. Later reports from the well showed it has declined to 3,000 bbls. daily. The same operators completed No. 44 Gladys at 3,950 feet, and it is swabbing 1,200 bbls. of 29.9 gravity oil.

Hull was credited with another big well when the Republic Production Co.'s No. 45 Dolbear was completed making 2,700 bbls. of pipe line oil. A small pumper was also completed in that area and a couple of more wells are being put on the pump. No interesting developments were reported from the wildcat areas in Liberty County.

Blue Ridge in Fort Bend County was the most active from the standpoint of completions during the week. Gordon, Fowler and Dixon's No. 1 Blakely came in making 1,350 bbls. of 25.4 gravity pipe line oil from 3,054 feet. A 500-bbl. well and a 250-bbl. well were also completed in that area, along with an 800-bbl. well and a 3,800-foot dry hole. At Big Creek and other areas of the same county only routine work was reported.

In Harris County, Pierce Junction was without completions, although an increase in activity was noted there. At Goose Creek the Humble company abandoned No. 72 Simms-Smith at 5,222 feet after having a slight show at 5,154 feet. Humphreys Oil Corp.'s No. 5-B Kirby at Barbers Hill in Chambers County was abandoned at 4,949 feet in shale.

Two small completions were reported in the Brenham Pool, Austin County, late in the week. Aronson and associates' No. 3 Sundenhusen was good for 5 bbls. at 216 feet, and Conklin and associates' No. 4 Pomacal made a similar amount of oil from 214 feet.

Calcasieu Completions

Edgerly in Calcasieu Parish, Louisiana, had three completions, one of which was a 1,000-bbl. well completed by Hercules Oil Co. in its No. 3 Paraffine at 3,757 feet. Gulf Refining Co. completed two wells in the same field, one making 600 bbls. of net oil and the other 150 bbls. of oil.

Union Sulphur Co.'s No. 721 fee, the first big production in the Sulphur Field and the second producer to be completed there, is producing around 800 bbls. daily and starting to show a little water. The well was completed last week at 3,458 feet making 1,200 bbls. of pipe line oil. It had 115 feet of pay topped at 3,329 feet with a 14-foot break of gumbo about half way from the top of the sand to the total depth. The well averaged around 900 bbls. for the past week. It is expected that a northeast play will result from the completion of the well.

Little new work was reported by the geophysical crews, although southern Louisiana continues to be an active place for geophysical crews. First reports, given at the end of this report, showed an increase over the previous location report.

Production Gains

Production in the coastal district showed a 900-bbl. increase over the last week's estimate and southwest Texas showed a slight increase while east Central Texas declined 200 bbls. The estimated production for three areas and for the week ending November 5 is as follows:

Spindletop	54,116
Saratoga	1,071
Batson	1,249
Goose Creek	7,961
Sour Lake	4,018
Hull	15,930
Big Creek	3,382
Columbia	8,218
Humble	3,625
Pierce Junction	10,664
Blue Ridge	5,313
Markham	250
Orange	4,487
Damon Mound	780
South Dayton	230
South Liberty	2,031
High Island	27
Moores Field	42
Boling	2,193
Nash Dome	1,545
Barbers Hill	800
Vinton	4,960
Starks	398
Edgerly	2,040
Evangeline	1,341
Lockport	5,752
Larcauville	0
Sweet Lake	0
Sulphur	900
Tota this week	143,323
Total last week	142,450
Increase	873

East Central

Mexia	9,127
Cedar Creek	1,075
Nigger Creek	1,660
Currie	584
Wortham	2,545
Richland	697
Powell	13,946
Total this week	29,634
Total last week	29,827
Decrease	193

Southwest

Somerset	2,360
Lytton Springs	1,695
Dale	480
Luling	14,970
Miscellaneous	9,096
Total this week	28,601
Total last week	28,542
Increase	59

Austin County

At Raccoon Bend, Humble Oil & Refining Co.'s No. 1 Paine was abandoned in broken shale at 1,171 feet, and location as been made for No. 2 Paine. Humble company's No. 1 Kelieswski is drilling sand and shale at 1,017 feet. Two miles west of Peters, T. F. Wood's No. 1 Trenckmann has a showing of gas at 863 feet and is drilling gumbo at 985 feet. Alexander and Lyle's No. 1 Gabel is a rig.

Brazoria County

Starks and associates' No. 3 H. C. Hinckle is drilling hard shale at 1,481 feet. Roxana corporation is reaming and washing at 5,185 feet at No. 4 Allen trying to get back to the bottom at 5,384 feet. Roxana corporation's No. 2 Bell is drilling hard sand at 4,156 feet and No. 1 Random is drilling gumbo at 1,707 feet. Rycade Oil Corp.'s No. 12 Nash is drilling sticky shale at 6,261 feet. Gulf Production Co.'s No. 3 Perry is drilling gumbo and lime at 2,242 feet. Texas Gulf Sulphur Co.'s No. 1 Pabst is drilling at 212 feet. Same company's No. 2 Davidson was abandoned at 785 feet in black sulphur water, and No. 3 is drilling at 575 feet. Texas Gulf Sulphur Co.'s No. 1 Proebstle is drilling at 300 feet. Rucks and associates' No. 1 J. M. Muldoon, at Slop Bowl, is drilling sand at 532 feet.

Chambers County

Five wells at High Island are either rigged up to drill deeper or are being rigged and they are McLean Oil Co.'s No. 6, 10, 11 and 6-C Cade and Gulf Production Co.'s No. 2 George E. Smith.

Fort Bend County

Blue Ridge was the most closely followed field in the coastal territory during the week with five completions being made there. Gordon, Fowler and Dixon's No. 1 Blakely was the best well of the week when it came in flowing 1,350 bbls. from pay at 2,987 to 3,054 feet. Cunningham Production Co.'s No. 2 Blakely made 500 bbls. initial from 2,551-89 feet and location was made for No. 3 Blakely. Navarro Oil Co.'s No. 3-B Robinson was completed at 4,288-92 feet flowing 250 bbls. of oil and No. 2-B Robinson topped the salt at 3,742 feet and was abandoned at 3,868 feet. J. S. Abercrombie & Co.'s No. 3 Robinson came in flowing 800 bbls. of fluid, 18 per cent b.s. and water, from 3,920 to 4,004 feet. Same company's No. 4 West-Schenck is drilling at 3,220 feet. Gulf Production Co.'s No. 16 Bassett Blakely C is drilling at 2,850 and No. 12 West-Schenck is drilling at 3,755 feet. Sam Watt's No. 1 Blakely is being rigged as is H. R. Cullen and associates' No. 1 Blakely and Blakely and associates' No. 1 Blakely.

At Big Creek Gulf Production Co.'s No. 43 T. W. Davis went into salt water at 3,100 feet and No. 44 is drilling at 2,850 feet. Rycade Oil Corp.'s No. 16 Wisdom at Nash Dome is sidetracking at 4,138 feet; total depth 4,232 feet and No. 5 Fritz Meier is drilling at 4,388 feet without anything showing. At Orchard Gulf Production Co.'s No. 14 Moore is drilling gumbo at 900 feet. At Long Point the Gulf company's No. 2-A Beard is a rig; No. 5 Trone is drilling at 1,033 feet and No. 5 Wolf is drilling at 1,071 feet. Sun Oil Co.'s No. 3 J. R. Farmer at Boling is sidetracking at 2,382 feet and having a hard time getting away from the old hole. Sun company's No. 3 H. R. Farmer at Boling topped the salt at 1,249 feet and was abandoned at 1,263 feet and No. 2 is being rigged. Sun company's No. 1 Kasparek is drilling sandy lime at 1,476 feet.

Hardin County

Lake View Oil Co.'s No. 29 Hardin at Sour Lake is pumping 15 bbls. of fluid, 6 per cent salt water, from 1,604 feet. In the same area Orange Petroleum Co.'s No. 4 Merchant is drilling at 3,550 feet. At Batson, Adabel Oil Co.'s No. 116 Honeymoon is pumping 3 bbls. from 400 feet. East Batson Oil Co.'s No. 6 Bates is being put on the pump at 1,140 feet. S. R. Buchanan's No. 95 Millhome is drilling at 481 feet. The Texas Company's No. 1 Sterling is drilling at 4,099 feet. Capitol Oil Co.'s No. 9 Hodges is drilling at 3,350 feet. Paraffine Oil Co.'s No. 43 Knight is drilling at 1,100 feet.

Harris County

No completions were reported from Pierce Junction but an increase was noted in field activities. Rio Bravo Oil Co.'s No. 6-B is being rigged to deepen; No. 1 P. S. A. is being rigged to drill deeper; No. 7 P. S. A. is drilling at 2,440 feet; No. 1 G. H. & S. A. is drilling at 1,600 feet and No. 101 G. H. & S. A. is drilling at 1,200 feet. Leonard Petroleum Co.'s No. 1 Marland is drilling at 1,450 feet. Joe Bashara's No. 2 Higgins is being rigged to drill deeper as is Navarro Oil Co.'s No. 3 Cain. Smith and associates' No. 1 Humble fee is drilling at 4,200 feet. Associated Oil Co.'s No. 1 Boyle is drilling at 3,850 feet. Moody corporation's No. 2 Hume is drilling at 4,065 feet. Sun Oil Co.'s No. 1 Fitzsimmons is drilling at 3,500 feet. Gulf Production Co.'s No. 1 H. M. Perry is drilling at 4,525 feet; No. 21 E. R. Taylor is drilling at 4.100 feet; No. 22 on the same lease is drilling at 1,650 feet and No. 19 Taylor is drilling at 4,440 feet.

At Goose Creek Humble Oil & Refining Co.'s No. 72 Simms-Smith was abandoned at 5,200 feet. Gulf Production Co.'s No. 4 Chapman-Bryan is being put on the pump at 4,350 feet; No. 14 Hoffman Gaillard is drilling at 2,600 feet and No. 21 Wright-A is drilling at 2,460 feet. Southern Exploration Co.'s No. 6 Freeman-State is fishing at 3,410 feet. At Hockley the Marland Oil Co. and Humble company's No. 2 Warren is drilling at 1,244 feet. Jaunita Oil Co.'s No. 1 Kitsman, northeast of Cypress is being washed to the bottom at 1,175 feet. Gulf Production Co.'s No. 1 Burt Griffith at Humble is in sandy shale at 5,305 feet.

Jefferson County

Battleship Oil Co.'s No. 1 Weed is fishing at 5,000 feet. Sun Oil Co.'s No. 6 McLean is drilling at 5,975 feet; No. 16 McLean is drilling at 3,900 feet and No. 17 McLean is drilling at 3,360 feet. Rio Bravo Oil Co.'s No. 58 T. & N. O. is pumping 200 bbls. from 3,550 feet. Same company's No. 2 T. & N. O. is being rigged to drill deeper. Magnolia Petroleum Co.'s No. 2 fee A is being washed to the bottom at 5,750 feet and No. 7 fee is drilling at 3,175 feet. J. O. Davis' No. 2 Gladys City is drilling at 5,325 feet. Gulf Production Co.'s No. 16 Marrs McLean is drilling at 4,650 feet and the strainer is being set at 875 feet at No. 227 Gladys. Gulf company's No. 10 Marrs-McLean is drilling at 4,575 feet and No. 11 Marrs-McLean is drilling at 4,510 feet. Gulf company's No. 9 Daisy Roche is drilling at 4,200 feet and No. 6 Jack and Duff is drilling at 2,000 feet.

Deep Test Oil Co.'s No. 1 McFaddin is fishing at 2,165 feet. J. O. Davis and Kinnear's No. 1 Gladys is trying to reset casing in lime and gumbo at 5,331 feet. At Fannette Gulf Production Co.'s No. 4 Bordages is drilling at 2,900 feet. Three miles northwest of Beaumont, Beaumont Oil & Prospecting Co's No. 1 Tyrell is sidetracking at 3,060 feet. South Spindletop Oil & Development Co.'s No. 1 Young is drilling at 2,410 feet. Five miles northeast of Port Arthur Jim McMurry's No. 1 Crosby is drilling gumbo at 4,000 feet.

Liberty County

At Hull, Republic Production Co.'s No. 43 Dolbear is being put on the pump at 2,500 feet; No. 49 Dolbear is being rigged to drill deeper and No. 89 is drilling at 2,400 feet. The Texas Company's No. 7 Hannah Vacuum is a rig; No. 4 Hannah fee is being put on the pump at 3,475 feet and No. 7 Merchant is being put on the pump at 3,100 feet. Hull Oil Co.'s No. 7 Harrison is drilling at 2,960 feet. Empire Gas & Fuel Co.'s No. 27 Barngrover is setting the strainer at 3,125 feet. Gulf Production Co.'s No. 87 Phoenix Development Co. is drilling at 3,900 feet; No. 29 Phoenix is being put on the pump at 3,800 feet; No. 10 W. L. Thomas is pumping 40 bbls. of fluid, 4 per cent water, from 3,297 feet and No. 1 Phoenix Development Co. is being drilled deeper.

At North Dayton Harrison Oil Co.'s No. 2 Quintette is fishing for the core

(Continued on Page 81)

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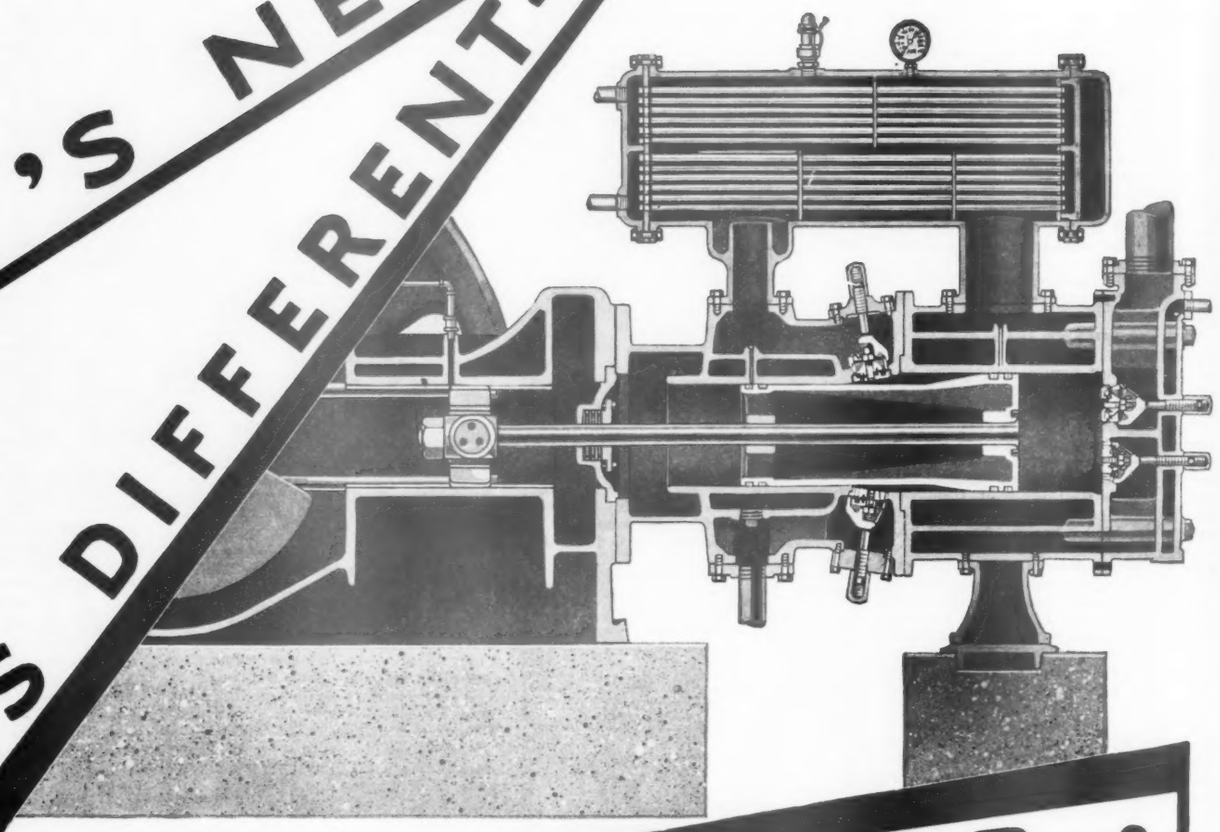

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Seacliff Less Feared Than Long Beach

New Area in Ventura County and the Potrero District Better in Hand Than Deep Drilling in the Old Field

By L. P. Stockman
Staff Correspondent, California Fields

LOS ANGELES, Calif., Nov. 5.—The feature of interest in California during the past week was the development of commercial production in the Seacliff area of Ventura County and, while this new field gives evidence of resulting in substantial production, it will probably not affect California's total daily production to any appreciable extent during the next several months as the acreage is held in fairly large blocks by responsible operators. Development work will therefore be carried on in a systematic manner compatible with well-established oil field practice. We must of course anticipate a certain amount of development work to result from the recent discovery but intensive town lot drilling which has characterized the work in the major fields of Los Angeles Basin will be conspicuous by its absence. This new field is bound eventually to be reflected in State production but normal drilling practically precludes the development of any immediate substantial production. The Potrero Field, recently opened up by the Associated, occupies a position somewhat similar to Seacliff in that the acreage will be developed slowly and conservatively due to the absence of town lot acreage.

Long Beach presents a much greater threat from a production standpoint due to deeper drilling and this field should register a substantial increase around the first of the year. The production chart accompanying this resume indicates very clearly that the trend of California's daily production has been downward since the early part of last May and there is no reason to believe that this gentle decline will be abruptly halted during the next 30 days, although minor fluctuations may be anticipated from time to time due to periodic completions in the prolific Long Beach Field. The downward tendency shown by California's daily production is due to a normal settling in older fields and a substantial drop in the output of the Alamitos Heights Section of the Seal Beach Field where the lower zones are rapidly becoming depleted due to intensive town lot drilling. Alamitos Heights may be expected to fall off another 15,000 bbls. during the course of the next 60 days but this decline will be offset to some extent by additional deep zone completions at Long Beach. One should not get the impression, however, from the foregoing brief analysis of California's production situation that everything is hotsy totsy, for such is not the case. There has not been a single instance since 1923 when conditions showed any concrete evidence of a general permanent improvement. Production may have fluctuated to a considerable extent during the intervening period but the horizon has never been cleared of a possible threat from wildcat development.

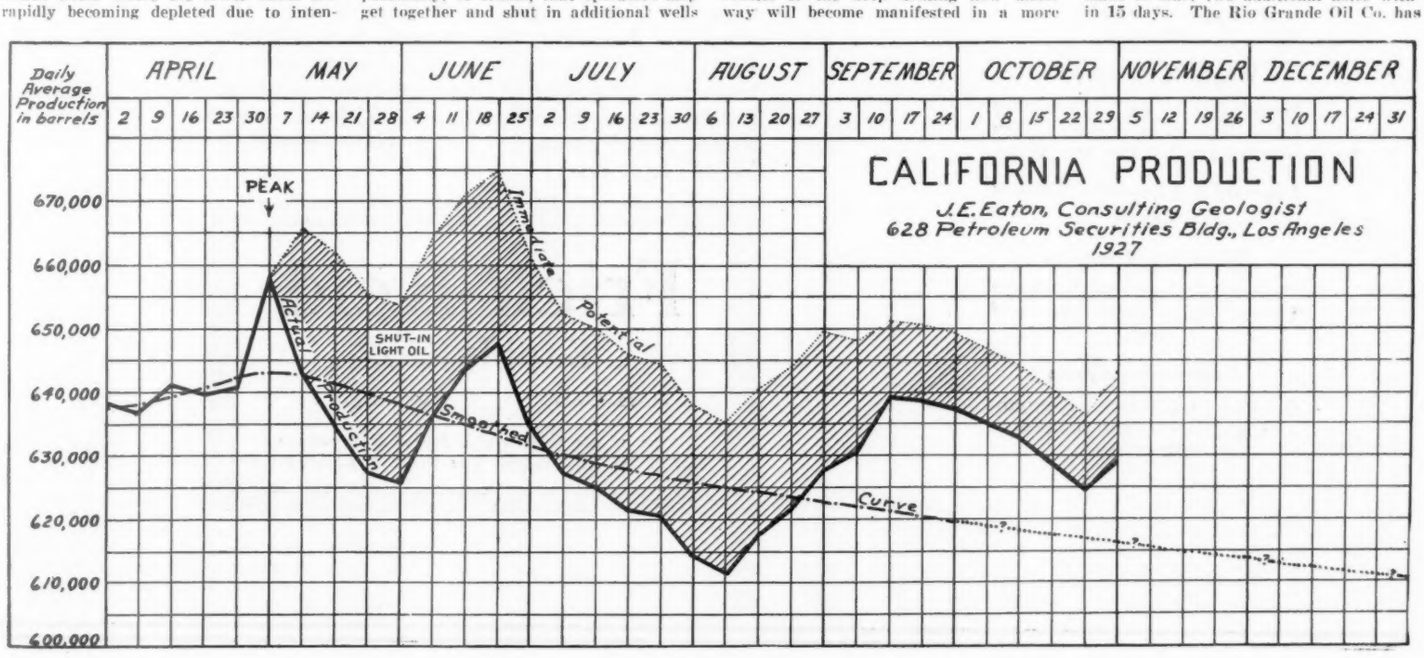
As has already been stated, the production trend for the rest of this year should be downward but all indications point to a rather appreciable increase which will probably occur around the Christmas holidays as a result of deeper drilling in the Long Beach Field. Several weeks ago the writer called attention to the fact that 1928 looked like a big year from a production standpoint. Since that time Potrero and Seacliff have come into existence and the original prediction is now almost sure of fulfillment. Allowance was made of course for the probability that both Petrero and Seacliff would come into production. Mention was also made of the Union Avenue area at Bakersfield in Kern County and, while this field has not yet become a reality, watch it very closely for it looks hot and has all the earmarks of a new field. It may take another well or two, however, to prove or disprove definitely the existence of commercial production as the present test is handicapped through the use of heavy drilling mud used to hold back the tremendous gas pressure. The Pacific Eastern's test has actually produced a limited amount of oil at infrequent intervals indicating the area has possibilities. In conclusion, one cannot help but appreciate the fact that 1928 presents a very serious problem. California's total production during the current year may probably exceed the total output chalked up in 1926 and from present indications next year's production may be still larger. There is a possibility, of course, that operators may get together and shut in additional wells but the probability of such a procedure, however, is a factor which cannot be foreseen. Arbitrary or compulsory curtailment of crude oil production to reduce excess production of natural gas in order to prevent economic waste may change the situation to some extent next year, but right now this is only a possibility.

Long Beach

The recent completion of several large flowing wells in the deep sand has stimulated work in the Long Beach Field very appreciably and a check made a few days ago showed 91 wells either already under way or scheduled for early work. Another deep sand completion was recorded in this field during the week and drilling operations will be further stimulated during the course of the next 21 days by the completion of several more which are already in the pay or rapidly nearing the top of the deep producing horizon. A. J. Delaney's No. 1 Britch, which came in a few days ago flowing 2,150 bbls. of 29.7 gravity oil daily from 5,718 feet, is the fourth successful deep sand completion in the Long Beach Field during the past two weeks. The aggregate initial daily production of this quartet totaled 13,487 bbls.. The next deep zone producer at Long Beach will probably be E. B. Campbell's No. 1, which is showing up exceptionally well at 5,860 feet, and unless mechanical trouble develops or some other delay is experienced it should be tanking oil within 10 days. The Pan American's No. 3 Chainey may precede this well into production, however, as the 6¼-inch oil string is due to be run in shortly preparatory to an early test. The Shell may also run Campbell a close race for the distinction of finishing the next well, as its No. 8 Cresson cored a solid oil sand a few days ago at 5,825 feet and should be brought in soon. There are quite a number of new wells and deepening projects in this field below the 5,000-foot level and, with but a few feet separating individual well depths, it is logical to assume that 8 or 10 should be completed around Thanksgiving. December will probably also be a rather busy period at Long Beach but, from present indications, results of the deep drilling now under way will become manifested in a more concrete way soon after the first of the year.

Several additional projected deep sand wells were located during the week and with stakes already driven most of these rigs will begin taking shape within a few days. Surveying crews are becoming more prominent and, judging by their presence, we may expect the announcement of 15 or 20 new locations in the near future. Featherstone & Preston and the Crown City Oil Co. each located a new well, the former driving stakes for No. 16 near California and Patterson Streets. The latter's No. 2 will be 380 feet south and 150 feet west of the center line of Hill and Orizaba Streets. The Shell is becoming active at Long Beach and rigs are going up for three new projected deep sand wells, Nos. 25, 26 and 27 on the Alamitos property. The Shell is only running four strings of tools at present, three on the Cresson lease and one on the Alamitos property but it is almost a foregone conclusion the company will have at least 25 wells under way soon. The Shell's future work will probably be dependent more or less upon the number of offsets which it will be obliged to drill to protect its holdings from drainage. The company's properties are fairly well scattered over the field and based on future locations the company may be obliged to drill anywhere from 50 to 75 offsets within six months.

The Richfield Oil Co.'s No. 8 Booth, a recent completion doing 4,825 bbls. daily from 5,960 feet, is still holding up in good shape, the output during the past 24 hours up to 7 o'clock this morning being 4,190 bbls. The well is making approximately 3,000,000 feet of gas every 24 hours and one run showed a casinghead recovery of 5 gallons per 1,000 feet. The Richfield is running five strings of tools in this field but the company's program for the immediate future calls for seven more. This will undoubtedly be increased again within 15 days as field reports indicate that the company has consummated a development deal with the Progressive Oil Syndicate. The Superior Oil Co. has two wells under way on the Crew lease and one on the Swaffield but preparations are being made to start two additional holes within 15 days. The Rio Grande Oil Co. has



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started Nos. 2-A and 6-B down to the lower horizon and will undoubtedly augment work as time goes on. The A. T. Jergins Trust has not yet announced its intention but with its holdings in the Lovelady Pool proven up for big production it is only a matter of time until work actually gets under way. The Union is working on one deep well on the Long Beach Community lease but two other locations will be drilled within a short time.

Seal Beach

There were several recompletions listed in the Seal Beach Field, the largest being the California Petroleum's No. 4 Alamitos, which was returned to production flowing 745 bbls. of 26.7 gravity oil daily from the 5,550-foot level. The Petroleum Securities redrilled and deepened No. 5 Naples from 4,990 feet to 5,312 feet but managed to secure only a 215-bbl. well. This is a concrete example of conditions in the Alamitos Heights section of the town lot field at present. Thirty days ago this well would have probably done at least 1,000 bbls. daily. E. J. Miley recompleted his No. 1 Alamitos in the lower sand at 5,075 feet, although the bottom 350 feet is junked and while the output was exceptionally clean the well only registered a maximum of 151 bbls. daily, notwithstanding it was on a compressor. In the older section of the field the Marland redrilled and deepened No. 14 Selover from the 5,200-foot level to 5,530 feet and returned it to production flowing 760 bbls. of 27.4 gravity oil daily. This well, which offsets development work in the town lot area, is still showing a rather high cut indicating the 20-foot plug put on bottom has not effectively excluded bottom water. The Associated concluded drilling operations on No. 22 Bryant in the extreme eastern part of the old field at 5,900 feet and the hole is being reamed preparatory to landing a string of pipe. This is the deepest well on the Bryant lease at present and the production test will undoubtedly be watched very closely.

Huntington Beach

There was one new well finished at Huntington Beach, and while drilling operations are consistently getting smaller, there are still 25 or 30 drilling projects which should be listed for completion before present operations are brought to a close. The new well finished this week was the Standard's No. 31 Bolsa Chica, a rather unique completion. It came in doing 75 bbls. of oil and 1,500,000 feet of gas daily from the 3,590-foot level. The most interesting feature in connection with it is that the oil tests 32.7 degrees. This high gravity oil is not peculiar to Huntington Beach and for this reason it has been subject to considerable comment. Simultaneous with this completion the Standard spudded in No. 32 Bolsa Chica and set pipe in No. 31 on the same lease. J. F. Garliepp's No. 1 Huntington, which came in last week doing 385 bbls. daily from 3,954 feet, is still holding up very satisfactorily, in fact it has done better than 400 bbls. daily on several occasions since completion. The South Basin Oil Co. has not yet started rig construction for No. 4 Dabney in the town lot area but as stakes have been driven it is believed actual work will get under way soon.

Richfield-Brea Olinda

The Brea Canyon Oil Co. successfully finished its No. 42 in the Brea Olinda Field early in the week and incidentally brought in a 330-bbl. well from the 4,901-foot level. The company's activities during the next six months will be devoted exclusively to deep sand exploration work in this area. No. 43 is being rigged up for work out along the east side of the company's property and spud will probably be made within 10 days. This well is outside of proven territory and will require deep drilling if successful. The Union's No. 3 Olinda has resolved itself into a deep test and although it has not shown anything of particular interest for the past 1,000 feet drilling will probably be continued. This well showed up quite favorably around the 3,000-foot level and the company will undoubtedly test out this showing before abandonment if deep drilling is successful. The Shell is running five strings of tools at Brea-Olinda but it will probably be 30 or 60 days before additional production can be expected. The General Petroleum has just finished No. 1 Atwood in the Richfield district at 4,448 feet and it will be put on a production test tomorrow. No. 2 Mullin should also be given an early test as drilling operations should be concluded within four or five days. The Union is putting the finishing touches on No. 26 Chapman, No. 5 Towell and No. 12 Yorba Linda Group and this trio should be tanking oil within two weeks. The Continental, which is directly responsible for the present scope of work at Richfield, is making exceptionally good footage on No. 6 Pyne and, although the well was only spudded in recently, it has already passed the 3,000-foot level. A check of operations at Coyote indicates the possible completion of three wells in that field within 15 days. The Petroleum Securities is getting ready to make a test on No. 1 Wright and this well will be followed into production by the Chiksan's No. 2 Mathis and No. 3 Lemke of the Herndon Petroleum Corp.

Ventura Avenue

Drilling operations in the Ventura Avenue Field are exceptionally large and it is difficult to harmonize development work of the various companies with the efforts being made to conserve the natural gas resources of this district by pinching in production. It would be logical to expect operators to curtail drilling operations temporarily, for of what use is it to reduce the present excess production of natural gas if additional wells are to be drilled into completion during the next several months and thus automatically void any progress made by again increasing the gas output? It may be possible, of course, that the operators may hold off completions until conditions improve but no definite move is yet evident along this line. About 4,000 bbls. of daily production were pinched in a few weeks ago but this restriction was not even reflected in field production as a new well brought in simultaneous with the curtailment offset any advantage gained so far as crude oil production is concerned. A check of drilling operations in this field indicates the probability of 10 completions within 90 days unless some agreement is reached in the meantime to stop just above the pay. The Associated, Shell and Petroleum Securities should each list several new wells during this period.

Kern River

Drilling operations along the Kern River front resulted in the completion of five new wells during the week. George F. Getty, who has just about concluded drilling obligations on the Tegeler and Lehnhardt properties, finished No. 25 on the former lease as a 95-bbl. pumper from 2,495 feet. No. 1 Grady in Section 26-28-27, is showing up exceptionally well at 1,911 feet and Getty may be able to transfer his activities from the Lehnhardt and Tegeler properties to this lease as the first well looks as if it might be good for at least 200 bbls. daily. The Associated brought in a nice producer in Section 23-28-27, when No. 55 was put on the beam at 2,123 feet. It showed an initial pumping of 320 bbls. of exceptionally clean 15.6 gravity oil daily. No. 56 in the same section, was also a good producer as it showed 230 bbls. of clean 15.9 gravity oil daily from 2,096 feet. The Standard chalked up two completions, No. 16 in Section 15-28-27, starting off at 180 bbls. daily, and No. 11 in Section 27-28-27, at 180 bbls. from 2,622 feet. Drilling operations on the Kern front are exceptionally large and consequently new wells may be anticipated during the course of the next several months.

Northern California Wildcats

The development from a wildcat standpoint in Northern California was the discovery of commercial production at Seacliff in Ventura County by the Pan American. With Seacliff removed from the wildcat list, the Union Avenue area at Bakersfield in Kern County will be the most interesting prospect to watch until its potentialities are definitely determined. The Pacific Eastern's wildcat in that area is still in a rather unfavorable condition so far as a definite test is concerned, although at times it shoots oil halfway up to the crown block only to sand up again. It is the consensus of opinion that the gas zone, just above the oil sand, is preventing commercial production by exerting a downward pressure against the oil formation. There is a strong probability that another test will be drilled as the present wildcat is in an unsatisfactory condition due to the heavy gas encountered. This well is naturally receiving considerable attention because it has actually cored a definite oil sand and showed possibilities of production by blowing off oil and gas but one must not overlook that considerable wildcatting and leasing is being done both north and south of this location where there is a good possibility of opening up additional fields. Edison, Delano, Fruitvale, Mon Bluff and nearly all intervening acreage is leased up tight and recent transactions are for the most part resales. There are several tests under way at Edison, one of which, the General Petroleum's wildcat, No. 1 Edison, has shown two fairly promising sands. Neither was of sufficient thickness to warrant the expectation of securing commercial production but they may overlie a better horizon below. Up near Delano the North American's No. 1 Wallace, being put down on a 5,000-acre tract, has shown several encouraging indications and considerable protective acreage has been tied up by some of the larger companies. The North American's wildcat, located in the vineyard owned by W. J. Wallace, is about 3 miles from the town of Delano. The Superior has a rig going up in Section 11-26-27, for a new wildcat about 6 miles east of McFarland where the company

(Continued on Page 125)

IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Company, Well and Location—	S-T-R	Depth	Status
Cal. Eastern, No. 1 Cypress, Potrero	27- 3-14	5,043	suspended
Associated, No. 1 Cypress, Potrero	34- 2-14	4,717	deepening
Hurst Oil Corp., No. 1 Inglewood, Los Angeles Co.	28- 2-14	2,904	sd. sh. drilling
Mont. Park Oil Co., No. 1 Browning, Monterey Park	26- 1-12	3,018	hd. sd. drilling
Associa ed, No. 1 Patterson, Pico	13- 2-12	996	sd. drilling
Circle Oil Co., No. 1 Pomeroy, Manchester	23- 2-14	4,280	suspended
Shell, No. 1 Mission, San Fernando	4- 2-15	4,392	oil show
Sou. Calif. Drlg. Co., No. 1 Matteson, El Segundo	1- 3-15	4,870	suspended
Carr, O. P. No. 2 Foster, San Juan Capistrano	13- 8- 8	3,961	testing show
Thomason & McCoy, No. 1 Rinz, Saugus	27- 5-16	1,610	suspended
Southwest Pet. No. 1 Ramsauer, Watts	4- 3-13	4,088	fishing
San Clemente Oil Co., No. 1 Peck, Hawthorne	20- 3-14	5,250	hd. sd. drilling
O'Donnell, J. E., No. 1 Dupree, Hawthorne	29- 3-14	5,304	gr. sd. drilling
White Behr, No. 1 Watson, L. A. County	21- 4-14	1,153	sd. drilling
Shell, No. 1 Allec, Placentia	31- 3- 9	4,600	hd. sd. drilling
Standard, No. 1 Olive, Orange Co.	17- 4- 9	4,450	hd. sd. drilling
Son. C. A., No. 1 Pinker.on, Orange Co.	5- 5-11	2,360	sd. sh. drilling
Ohio Oil Co., No. 1 Bolsa Dome, Orange Co.	35- 5-11	rig	rigging up
Stein, Leo. No. 1 Long, Orange Co.	21- 5-11	4,233	hd. sd. drilling
Shell, No. 1 Stern, Orange Co.	22- 3-10	416	sd. drilling
Standard, No. 1 Rindge, Palms	36- 1-15	rig	in litigation
Hemet Pet. Co., No. 1 Ward, Riverside Co.	9- 5- 1	1,510	hd. sd. drilling
Anchor Oil Co., No. 1 Hudson, Los Angeles Co.	19- 2-10	2,395	hd. sd. drilling
Pet. Securities, No. 1 Newport, Orange	3- 6-10	1,943	hd. sd. drilling

IMPORTANT NORTHERN CALIFORNIA WILDCATS

Associated, No. 1 Smith, Kettleman Hills	12-23-18	2,043	suspended
Bolsa Chica, Well No. 1, Kettleman Hills	30-23-19	3,502	suspended
General Pet., No. 1 Burbank, Kettleman Hills	30-23-19	3,105	pipe bad
General Pet., No. 2 Oschener, Ke.tleman Hills	26-22-18	5,030	gr. sd. drilling
General Pet., No. 1 Dome, Kettleman Hills	4-24-19	3,800	suspended
South Coalinga, Well No. 1, Kettleman Hills	35-24-19	2,930	sd. sh. drilling
Monocline Dev. Co., Well No. 1, Kettleman Hills	7-21-21	890	sd. drilling
McPhail, Hugh, Well No. 1, Kettleman Hills	13-24-18	2,160	hd. sd. drilling
Superior Oil Co., No. 1 Kennedy, Kettleman Hills	18-21-17	....	location
Milham Explt'n., No. 1 Kettleman, Kings Co.	2-22-17	6,275	hd. sd. drilling
Shell, No. 2 Berlywood, Moorpark	32- 3-20	5,860	hd. sd. drilling
C. C. M. O., No. 1 Hobson, Ventura Co.	22- 3-24	7,002	oil sand
C. C. M. O., No. 1-B Hobson, Ventura Co.	16- 3-24	5,738	oil sand
Pan American, No. 1 S.ate, Ventura Co.	17- 3-24	3,220	new oil field
Pan American, No. 1 U. S., Ventura Co.	17- 3-24	rig	suspended
Star Petroleum, No. 2 Canet, Ventura Co.	13- 3-23	700	sd. drilling
Scott Petroleum, No. 1 Surf, Ventura Co.	35- 4-24	681	suspended
Continental Oil Co., No. 1 Burnham, Ventura Co.	22- 6-18	3,290	gr. sd. drilling
Standard, No. 1 Camarillo, Ventura Co.	29- 2-20	5,590	fishing
Petroleum Sec., No. 1 Diablo, Ventura Co.	26- 5-18	3,368	gr. sd. drilling
Parkford, E. A., No. 1 Strathern, Ven.ura Co.	6- 2-18	3,950	suspended
Shell, No. 1 Strathern, Ventura Co.	6- 2-18	mtl.	building rig
Geiss & Bradford, No. 1 Sulphur Mountain, Ventura Co.	21- 4-22	1,997	oil sand
Miley Oil Co., No. 1 Red Mountain, Ventura Co.	7- 3-23	980	suspended
Richfield, No. 27 Piru, Ventura Co.	35- 5-18	1,902	suspended
Milham Explt'n., No. 2 Buttonwillow, Kern Co.	8-28-23	4,662	gas well
Milham Explt'n., No. 3 Buttonwillow, Kern Co.	7-29-24	4,150	suspended
Pacific Eastern, No. 1 Fruitvale, Kern Co.	21-29-27	1,728	gr. sd. drilling
Pacific Eastern, No. 1 Bakersfield, Kern Co.	6-30-28	4,503	testing
General Pet., No. 1 Edison, Kern Co.	5-30-29	3,609	little show
Getty, George F., No. 1 Edison, Kern Co.	22-29-29	3,317	br. sh. drilling
Union, No. 1 Mon Bluff, Kern Co.	28-27-28	mtl.	building rig
Shell, No. 1 Mon Bluff, Kern Co.	3-28-28	2,996	hd. sd. drilling
Superior, No. 1 McFarland, Kern Co.	11-26-27	rig	rigging up
C. C. M. O., No. 1 Quinn, Delano	23-25-27	2,281	to abandon
North American, No. 1 Wallace, Delano	5-25-26	3,529	bl. sh. drilling
Fresno Madera Oil Co., No. 1 Clovis, Fresno Co.	18-12-21	3,830	hd. sd. drilling
Barneyberg Oil Co., No. 1 Brown, San Luis Obispo	25-32-14	2,195	br. sh. drilling
Richfield, No. 1 Wreden, San Luis Obispo Co.	10-29-17	1,648	hd. sd. drilling
Miley Ex. Co., No. 1 Carissa, San Luis Obispo Co.	15-29-17	mtl.	building rig
Union Oil Co., No. 1 Huasna, San Luis Obispo	34-32-15	rig	rigging up
Shell, No. 1 Cowell, San Mateo Co.	8- 6- 5	4,937	hd. sd. drilling
Shell, No. 1 Murphy, Petaluma	29- 5- 6	6,365	hd. sd. drilling
Shell, No. 2 Murphy, Petaluma	8- 5- 6	1,960	hd. sd. drilling
Thomas & Hammill, Well No. 1 Almeda Co.	16- 3- 3	1,450	hd. sd. drilling
Buttram, F. W., No. 1 Odin, Santa Barbara Co.	20-25-27	370	sd. drilling
Elliott & Clarke, No. 1 Marcos, Santa Barbara Co.	3- 6-29	2,634	hd. sd. drilling
Gorham, G. O., No. 1 Orcutt, Santa Barbara Co.	33-10-34	mtl.	building rig
Becker, Geo. F., No. 1 Summerland, Santa Barbara Co.	33- 4-25	3,060	shut off N. G.
Birch Oil Co., No. 1 Porterville, Tulare Co.	13-20-26	2,192	hd. sd. drilling

TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

Commodity—	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Crude oil	309,130	44,161	226,174	32,310	8,561,735	10,034,914
Fuel oil	71,512	10,216	67,219	9,603	6,634,690	6,004,866
Diesel and gas oil	.....	.....	.....	.....	2,228,626	2,683,096
Gasoline	73,026	10,432	331,176	47,311	7,552,545	5,599,153
Tops	.....	.....	.....	.....	.....	302,347
Coastwise—						
Crude oil	230,614	32,945	405,784	57,969	20,654,882	19,594,976
Fuel oil	79,841	11,406	438,927	62,704	10,495,880	9,263,437
Diesel and gas oil	.....	.....	4,930	704	322,917	147,960
Gasoline	169,572	24,225	189,825	27,118	7,905,662	6,189,854
Kerosene	4,619	660	34,240	4,891	194,508	168,179
Tops	.....	.....	.....	.....	152,275	501,520
Exports—						
Crude oil	.....	.....	56,444	8,063	2,014,762	3,432,631
Fuel oil	612,689	77,537	857,128	122,433	23,412,138	14,964,236
Diesel and gas oil	4,727	675	102,566	14,652	1,100,031	580,727
Gasoline	87,656	12,522	130,501	18,643	4,199,615	4,056,555
Tops	.....	.....	.....	.....	227,204	70,415
Kerosene	80,416	11,488	74,689	10,670	1,763,748	2,562,011

TANKER SHIPMENTS FROM SAN FRANCISCO TO ATLANTIC AND GULF COAST PORTS

Fuel oil	.....	.....	.....	.....	.....	78,653
Diesel and gas oil	.....	.....	74,182	10,597	671,340	1,522,660
Gasoline	71,563	10,223	.....	.....	1,684,538	853,312
Tops	.....	.....	.....	.....	.....	73,698
Lubricants	.....	.....	.....	.....	370,180	350,000
Coastwise—						
Fuel oil	7,715	1,102	113,626	16,232	4,247,738	4,521,402
Diesel and gas oil	.....	.....	1,477	211	208,489	.....
Gasoline	80,130	11,447	157,630	22,519	4,421,458	3,894,885
Kerosene	.....	.....	1,918	274	198,243	294,649
Exports—						
Fuel oil	.....	.....	72,000	10,286	2,250,702	2,863,280
Gasoline	8,746	1,249	64,247	9,178	2,267,478	1,608,685
Kerosene	.....	.....	45,000	6,429	764,745	1,722,117
Lubricants	.....	.....	4,200	600	22,570	66,706

New Mexico Well Augurs Big Play

Texas Production Co.'s Gasser in Lea County Expected to Start Lively Drilling Along the Texas State Line

By Tolbert R. Ingram
Staff Correspondent, Rocky Mountain Area

DENVER, Colo., Nov. 7.—The principal development of the week in New Mexico was the deepening of the Texas Production Co.'s No. 1 Rhoades in Lea County, encountering another gas horizon at 3,180-88 feet and bringing the flow up to 29,000,000 feet, the hole also spraying 25 to 35 bbls. of oil. The well which dropped back to 23,000,000 feet will be completed as a gasser.

Midwest Refining Co.'s No. 1 Hancock on the Hospah Dome in McKinley County, the discovery well in the Mesa Verde, after finding water in the Dakota, was plugged back to the original showing and made 240 bbls. initial. It is now producing 160 to 175 bbls. on the pump.

News from Wyoming wildcats was meager on account of snowstorms blocking some areas. The Wyoming Associated Oil Co. completed a Lakota sand well in Salt Creek with an initial production of 1,788 bbls., after which it was shut in. A showing of gas at 2,800 feet was reported in the Deseret Oil Co.'s test in Uinta County in the southwestern corner of the state.

Oil, apparently in commercial quantities, was encountered in the Muddy sand in the Left Hand Oil Co.'s No. 1 Prechtl, a wildcat 12 miles north of Boulder and 30 miles from the Wellington-Fort Collins area, on the eastern side of the mountain range in Colorado. The Texas Production Co. has topped the Sundance in its No. 17 Parkinson on the Iles Dome in Moffat County, the well making gas and several oil flows by heads. It was shut down to case. A new test, to be drilled in the Tertiary, was announced by the Argo Oil Co., the location being on the Piceance Creek structure in Rio Blanco County. The Midwest Refining Co. cut another gas sand at 3,047-50 feet in its Rangely Dome test in Rio Blanco County. The Union Oil Co. of California is reported preparing to test another wildcat structure 11 miles north of the Wellington Dome.

Utah had another failure on the Lisbon Dome, the Union Oil Co. of California's No. 1 State being still in salt at 5,010 feet when it was decided to abandon the test. An old well near Duchesne showed 2,400 feet of oil standing in the hole when the Midwest pulled the casing preliminary to deepening. When shut down four years ago the test was bottomed 1 foot in a water sand.

New Mexico

The Texas Production Co.'s No. 1 Rhoades, SE NE NW, Section 23-26-37, southeastern Lea County, New Mexico, continued this week to attract the attention of the oil men. The second pay horizon was encountered in lime at 3,180-88 feet. The gas tested one gallon of gasoline to the 1,000 feet. The oil sprayed with the gas is very light and vaporizes quickly with the gas and no test of the exact quantity the well is making is possible.

Last week this test was reported at 3,160 feet, where it had an initial flow of 40,000,000 feet. This flow dropped to 22,500,000 feet before the tools were recovered. The hole has gone through the new horizon at 3,180-88 feet and was drilling in hard shell at 3,216 feet, the gas flow having dropped to 23,000,000 feet and the oil spray remaining about the same. Preparations were being made to complete it as a gas well. The well is within 6 miles of the Texas line and 20 miles from the oil field in Winkler County. It is in a direct line between the Winkler County Pool and the Maljamar area in New Mexico, and the showing already made will cause a big play, it is expected, in test wells along the New Mexico-Texas line for a distance of 75 miles north and south.

The Texas Production Co.'s other Lea County test, its No. 1 Lockhart, SE SW, Section 5-22-38, continues to make rapid progress and is drilling at 4,070 feet in lime. It topped the lime at 3,758 feet, 3,371 feet above sea level. The Maljamar Oil & Gas Co.'s No. 2 Beardsley, SE NE, Section 15-17-32, is drilling in lime and anhydrite at 2,765 feet. It had a show of oil at 2,655-75 feet, and also a small show at 2,575-88 feet. Bordages' No. 1 Jennie Hughes, Section 27-19-33, which commenced spudding in an 18-inch hole, is down 90 feet, where it is having trouble with surface water and quicksand. The Midwest Refining Co.'s No. 1 State, NE Section 9-19-38, in the Hobbs High area, is bottomed at 360 feet and is having trouble from caving ground.

In Eddy County

In Eddy County, the Texas Production Co.'s No. 2 Robinson, NW SW, Section 25-16-31, is drilling in lime at 2,815 feet. It was in anhydrite last week at 2,585 feet. Pueblo Oil Co.'s No. 1 Gessert, NW NE, Section 1-17-31, is drilling in anhydrite and lime at 3,160 feet. It had a show of oil, gas and water in sandy lime at 3,067-78 feet. The red sand was cut at 3,078-3,105 feet. Skelly Oil Co.'s No. 1 Buelah Lynch, Section 22-17-31, after being plugged back to 3,822 feet, is still having difficulties and has not yet been able to make a test of production at that horizon. Ross & Grimm's No. 1 Daughtery, NE SE, Section 3-17-27, is drilling below 1,500 feet. Getty Oil, Inc.'s No. 1 Hinkle, NE cor., Section 23-20-29, is drilling below 600 feet. R. D. Compton's No. 4 Mann, Section 4-18-27, is drilling below 1,000 feet. Hammond Oil Co.'s No. 1, SE SW, Section 15-16-25, in the Cottonwood district, is shut down installing a control head preparatory to using the gas found at below 1,200 feet for fuel in drilling.

McQuigg & McQuigg's No. 1 Neis, SW NW, Section 7-5-29, in the Olive Basin area in Quay County, is spudding at 320 feet. This operation will be watched with interest as the area being tested lies between the Ohio Oil Co.'s test at Jordan Ridge and the Gibson Oil Corp.'s test near the Benita fault and the Artesia and Caprock districts in Eddy County, as it is declared there is some kind of structure in there. The area never has been disproven. The Ohio Oil Co.'s No. 1 Wells, SW SE, Section 24-7n-29e, is bottomed at 4,005 feet and has discovered nothing worth while, though it is still drilling. The Gibson Oil Corp.'s No. 1 Parks, SW NW, Section 25-8-32, is shut down at 3,502 feet. It was thought this test would be abandoned, but it is now reported that it will be drilled down to at least 4,000 feet.

In Chaves County

In Chaves County, The Texas Production Co.'s No. 1 Wilson, SW Section 29-17-18, Dunken Dome, is drilling in black shale at 4,870 feet. The Arena Oil Co.'s No. 1 Wilkerson, NE Section 18-13-31, is underreaming at 760 feet. These are the only active operations in the county.

In McKinley County, the Midwest Refining Co.'s No. 1 Hancock, NW Section 1-17-9, on the Hospah Dome, was plugged back to the Mesa Verde sand at 1,561 feet and put on the pump. It made 140 bbls. in the first 12 hours, and 240 bbls. in the following 24 hour period. It is now pumping between 160 and 175 bbls. This was the discovery well for the Hospah structure, and resulted in activity by other companies. It found water in the Dakota at 3,282 feet. The company is not starting any more wells at present in that area and probably will not do so before spring. Two other wells drilled by the Midwest were small producers, its No. 34, Section 36-18-9, being good for 50 bbls. initial, and its No. 1 Hurst, Section 1-17-9, showing for about 8 bbls. The Producers & Refiners Corp.'s No. 2, NW NE, Section 12-17-9, on the south end of the structure, is spudding. The Continental Oil Co.'s No. 1, Section 9-17-7, Carica Dome, is drilling at 2,182 feet. It had more water at 2,165 feet, in the Mesa Verde and does not look promising. Ohio Oil Co.'s No. 1 Nightingale, NW NW, Section 25-17-6, on the Chico Dome, is reported to have encountered water at 1,790 feet in a sand in the Mesa Verde formation and is preparing to abandon.

Surface Indications Good

This structure was one of the largest and best appearing in the county from surface indications. This is the second water well drilled by the company in McKinley County, its test on Section 18-16-9, the Vogt Dome, having found water in the Mesa Verde.

The pipe line from the T. C. N. Oil Co.'s No. 1 Lanier, Section 9-29-11, in the Bloomfield area, in San Juan County, to Aztec, a distance of 5 miles, is now being laid to supply the town with gas. The company's No. 2 Lanier, SE SW, Section 9-29-11, is drilling at 550 feet. The Huntington Park Oil Co.'s No. 1 Terwilliger, SE SE, Section 29-30-9, which shut down at 4,180 feet, is still idle waiting for casing. J. Warren Miller and others are drilling at 120 feet their No. 1 Markley, Section 16-29-13. The Picture Cliff sand is the objective. Messick & Bell's No. 1 Garland, SW NE, Section 34-29-11, the old Congress well, is still in the Picture Cliff formation at 1,775 feet and is reported making 5,000,000 feet of gas. Drilling is being continued slowly in hopes of running into an oil horizon. Portage Oil Co.'s No. 1 Hubbell, SW SW, Section 25-31-13, in the Glade district, is idle at 1,300 feet waiting for orders after failure to get oil in two thin sands in the Farmington series. The hole is dry and may be carried to the Picture Cliff sand. Continental Oil Co.'s No. 17, Section 2-29-19, Rattlesnake Dome, is at 3,731 feet, and has only 55 feet to go to reach old bottom.

Wyoming

News from the Wyoming wildcats this week was meager due to severe snowstorms, especially in the southern part. Along the Wyoming-Colorado line numerous automobiles were tied up, 60 being reported held up at Tie Siding at one time and others caught in out-of-the-way places. Rescue parties had to be sent out in some instances, and the roads over mountain passes were temporarily blocked. Oil operators generally are prepared for these emergencies and depend upon telephone lines for communication. Where long trips are necessary, they frequently built shelter houses at points along the way for use in an emergency. This was done between Casper and Rawlins a few years ago and now the California Petroleum Corp. is establishing shelters along the highway between Kemmerer and the LaBarge Field. These shelters are

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THIRD SHOWING IN OKALTA WELL, SOUTHWEST OF CALGARY, ALBERTA

By Victor Lauriston
Staff Correspondent, Canadian Fields

CHATHAM, Ontario, Nov. 7.—In the Turner Valley field southwest of Calgary, Okalta Oils No. 1, LSD 1, Section 1-20-3w5, has encountered a fair production of light amber crude at 4,120 feet depth. Following the strike, the oil rose 2,000 feet in the hole, and 24 hours of bailing failed to lower this level. Production is estimated at 25 bbls. a day or better. The crude is similar to the New McDougall-Segur production from the Dakota sand, testing 55.6 Baume. This is the third show of oil encountered in Okalta No. 1, the first being a small show and the second indicating about 15 bbls. a day. The crew was delayed recently by the necessity of swedging out a bad spot in the casing about 400 feet from the bottom. Drilling was resumed at 4,100 feet and after making 20 feet of new hole the present show was encountered. Similar shows have been encountered in adjacent deep tests. The Okalta No. 1 will be continued to the Madison limestone.

Spooner Oils No. 1, LSD 12, Section 13-20-3w5, drilling at 4,664 feet, got a fair show of wet gas, estimated at 1,000,000 feet a day. The drill is apparently in the top of the Madison limestone. Some crude was met in the Fernie shale horizon, overlying the lime, but this was cased off to test the deep lime. Drilling is being continued.

Illinois-Alberta Oil & Refining Co. No. 1, LSD 14, Section 12-20-3w5, is still increasing its crude naphtha production from the Madison limestone at 3,858 feet, latest reports showing an average of 100 bbls. a day. Illinois-Alberta No. 2, same LSD, is drilling at 418 feet.

Deepest Naphtha Producer

Vulcan Oils No. 1, LSD 11, Section 13-20-3w5, which has been producing from the Madison limestone at 5,004 feet, has been off production for more than two weeks, due to the well being frozen. Since the Vulcan No. 1 came in about a year ago, it has frozen at intervals, but never for so long a period. Attempts are being made to fish out the string of tools at the bottom of the well and possibly drill it deeper into the lime, both operations being calculated, if successful, to increase the production. At last reports the well was making around 100 bbls. a day. Vulcan No. 1, though not a large producer, has some interesting features. It is the deepest crude naphtha producer in the Turner Valley Field, and was the first well to establish the dip in the anticline north of Dalhousie No. 6, this dip representing, it is thought, a syncline between two parallel folds. When the well came in at 5,004 feet, the gas pressure blew the bit up into the hole and kinked the cable so that it wedged in the casing, causing the loss of the tools. Later the well was out of production for a month due to a gas explosion that blew the separator to pieces. The intervals of freezing have usually been followed by temporarily increased production. Latterly the crude naphtha production, which started around 73 Baume, has dropped to 67 Baume. Of the wet gassers in the Madison limestone, all have lost bits in the hole, though McLeod No. 2, which

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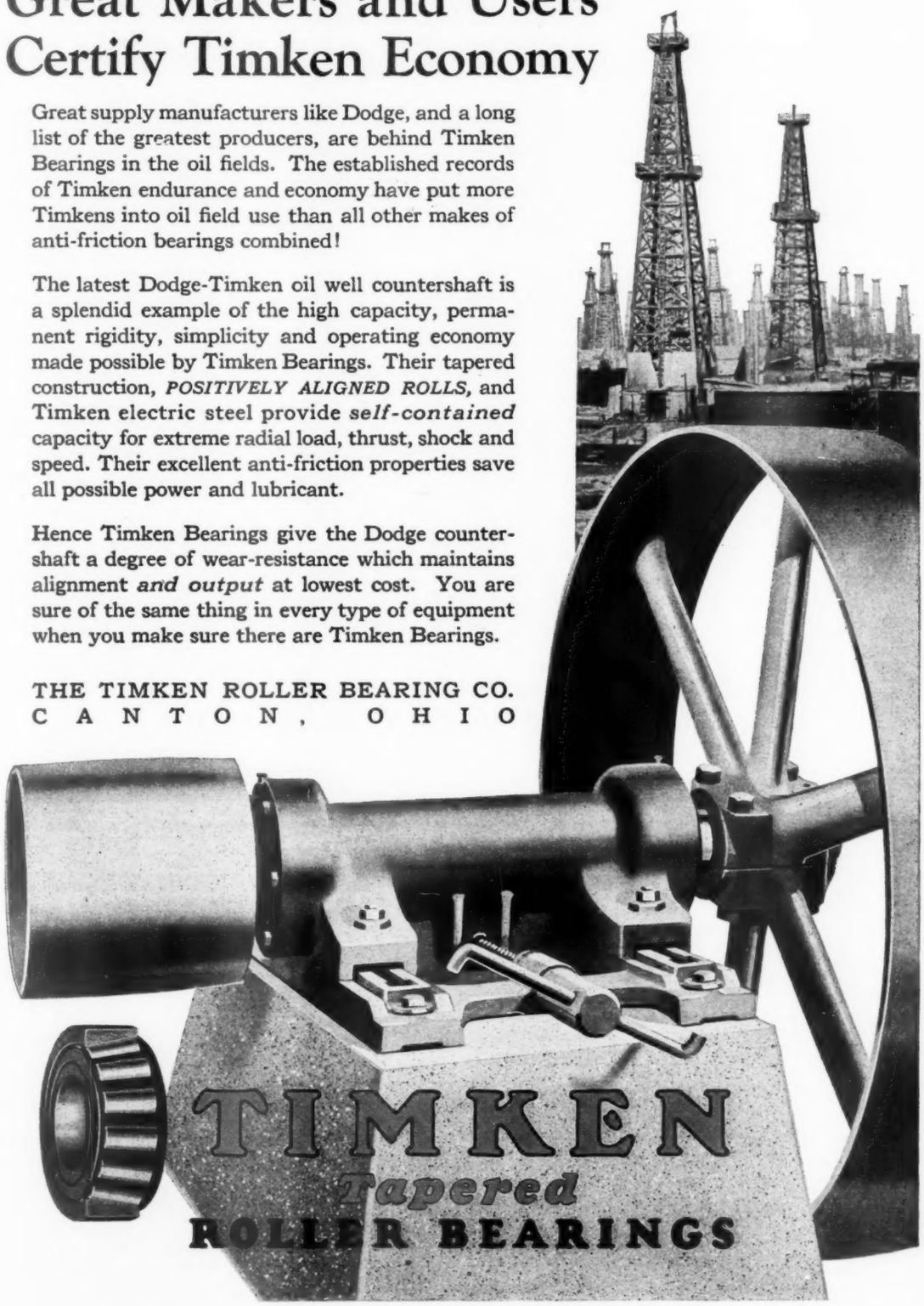

Best Central West Wells in Indiana

Few of More Than Usual Size Reported During Week. Central Ohio Field Turns Up Some Good Gas Producers

By Whit
Staff Correspondent, Central West Fields

FINDLAY, Ohio, Nov. 4.—Few wells of more than usual size were reported in the Central West Field since the last report, although the Central Ohio Field turned up some very nice gas producers, the best of which was reported at 5,000,000 feet on the Kennedy 29 acres in Olmstead Township, Cuyahoga County, in the Cleveland Field, the gas being found in the Newburg sand, which lies above the Clinton formation, from which most of the gas comes from in the field. Some very good gas producers were discovered in a shallower sand, known as the Berea formation. There are several sands productive in different parts of the Central Ohio area, the Mecca-Belden, Berea, Big Injun, Stray sand, Newburg, Clinton and Niagara formations, the Clinton being the most prolific on account of being found in almost all parts of the field, as is the shallow Berea sand, the others being found in various counties. The deepest known producing sand of any value so far in the field is the Niagara limestone, which brings forth some very good oil wells as well as gas wells, the Niagara being the main source of supply in Guernsey County.

The best well for the week in the Central West comes from Washington Township, Gibson County, in southwestern Indiana, where a test on the C. L. Muncey farm produced an initial of 60 bbls.; the next best being in the Allendale Field, in Wabash Township, Wabash County, Indiana, on the Breen farm, good for 30 bbls. natural. A test in Casey Township, Clark County, Illinois, on the Lou Callahan farm, showed on initial of 17 bb's. from the Stray sand. In Hancock County, Eagle Township, in the Lima Field, a 25-bbl. pumper was found on the Henry Deeds farm.

Lima Field

In the old Lima Field of northwestern Ohio development work appears to be going backward, although the weather conditions have been excellent for field work. The largest amount of work for the coming few months will be more on the wildcat order in hope of finding something worth while for the coming spring. Much of the old abandoned territory that produced for years from the shallower plays in the Trenton sand is being taken under lease and eventually there will be a thorough testing of the lower parts of the Trenton known to be in spots at least 800 feet thick.

The recent test of the Catawaba Oil & Gas Co., 200 feet from the north line and 1,200 from the west line of the old C. B. Holden farm, in the SW of Section 6, Catawaba Township, Ottawa County, and at the extreme eastern part of the Lima Field, just east of Port Clinton, after given a shot produced an initial of 25,000 feet of gas which will be utilized for heating purposes. The top of the Trenton was found at 1,907 feet and drilled 52 feet into the sand.

Near Woodville in Woodville Township, Sandusky County, Gustave Magsig drilled in his No. 28 in the northeast corner of his own farm, in the NE of Section 26, topping the sand at 1,253 feet and drilling 47 feet in the sand, the well showing an initial production of 11 bbls.

In Eagle Township, Hancock County, B. Porter and others' No. 21, 600 feet from the north and east lines of the Henry Deed farm, Section 6, pumped 25 bbls.; same being found at 1,315 feet and sent to a total depth of 1,400 feet.

Indiana

Nine completions were reported from the Indiana fields since the last report, the best being in the southwestern division, in what is known as the Princeton district. William Bell and others' test 150 feet from the north line and 600 from the east line of the C. L. Muncey farm, in the SE of Section 1, Washington Township, Gibson County, struck the top of sand at 1,540 feet and at 15 feet in the sand produced 60 bbls. initial, making it the outstanding well of the week in Indiana. Same parties' second test, 350 feet from the south line and 200 from the west lines of the Frank Lindsay farm, in the NW of Section 6, pumped 25 bbls. Sand was found at 799 feet and drilled 22 feet in the sand to a total depth of 821 feet. In the same township, Gray Morrissey and others abandoned No. 1 on the Margaret Mauck farm, Section 29.

In Clay Township, Pike County, A. B. Bement drilled No. 3 in the southeast corner of the Susan Catts farm, in the NW of Section 13. Pays were found at 1,301 feet and from 1,319 to 1,325 feet and sent to a total depth of 1,357 feet and nothing but a small volume of gas was encountered. In Logan Township, same county, Alex. Singer and others' test in the southeast corner of the Pink Atkinson farm, in the SW of Section 23, proved a duster at a depth of 1,250 feet and has been pulled out and abandoned. Wiser Oil Co. is drilling a second test on the Rumble farm, Section 13, same township. In Madison Township, the Ohio Oil Co. is drilling No. 9 on the N. B. Coffman farm, Section 26.

In Veale Township, Daviess County, T. H. Danver has shut down at his No. 3 on the Allison farm, Section 35, and Hartman & Sargent are drilling No. 2 Ti'man Gaither farm, Section 22.

In Monroe Township, Randolph County, Wesner and others are drilling a test on the Joseph Meeks farm, southwest of Parker City, close in to the old time producing area of that county, which is in the Trenton Rock Field of Indiana.

In Bear Creek Township, Jay County, in the Trenton Rock area in the eastern part of the State, the Waterloo Oil & Gas Co.'s No. 6 on the C. E. Brinkerhoff farm, Section 21, is a 30-bbl. initial producer. No. 9, same farm, is under way. Bert Strickler and others' No. 1 on the A. Downing farm, Section 18, is a 9-bbl. pumper.

In Penn Township, Jay County, near Pennville, the R. & M. Oil Co.'s second venture on the A. B. Brown farm, Section 33, is a duster. George Northrup is drilling a test on property owned by the Wabash Bank Co., Section 17, same township. In Knox Township, the Knox Oil Co. is drilling a test on the Earl Kellse farm, Section 16.

In Chester Township, Wells County, the Lawrenceville Drilling Co. is drilling a wildcat on the Bertha Twibell farm, Section 18.

In Blue Creek Township, Adams County, Paul Schulte Oil & Gas Co.'s No. 4 on the Edward Lugabill farm, Section 20, is only a 3-bbl. pumper. In Hartford Township, the Maybier Oil Co.'s test on the H. Egley farm, Section 13, is a real dry hole.

Illinois

The best of the late completions in the Illinois Field is the Breen Oil Co.'s No. 7 well, 200 feet from the south line and 600 from the east line of the John Breen farm, in the NE of Section 2, Wabash Township, Wabash County, and in the Allendale Field, which showed an initial natural production the first 24 hours of 30 bbls. Sand was topped at 1,310 feet and the drill sent but 19 feet deeper where the good pay was encountered. Several new wells are under way and others starting in this field. Joe S. Young, Jr., and others are drilling No. 7 on the Joe Keyser farm, Section 13. H. R. Martin and others are drilling No. 3 A. A. Gher farm, Section 1. Dewees and others are going ahead with their No. 1 on the C. D. Banks farm, Section 6. The Max Oil Co. is drilling No. 9 on the Holson-Dorney farm, Section 18. J. W. Whiteside and others are working at No. 4 on the Howard Armstrong farm, Section 24, and J. D. Tooney and others are drilling No. 15 on the Lucy Courter farm, Section 3, in the old B'ehl Pool, west of Allendale. Smith and others have a rig in ready to start drilling for No. 1 on the J. W. Andrews farm, Section 5, right near the division line of Wabash and Friendsville Townships. Miller & Karns are also starting a test on the C. R. Schrader farm, Section 12, not far from the town of Allendale.

In Casey Township, Clark County, W. C. McBride, Inc., drilled a test in the northwest corner of the Lou Callahan 120-acre farm, in the SW of Section 25, and close to 5 mils east and a little south of Casey. This test was sent to the Stray sand found at a depth of 1,320 feet and produced an initial of 18 bbls. About 2 miles north of Casey, William Carper and others drilled a deep hole in the Shal'ow field, 200 feet from the south line and 600 from the west line of the William Carper farm, in the SE of Section 6, to a depth of 1,160 feet and found a dry hole.

In Johnson Township, Clark County, W. C. McBride, Inc., drilled a dry hole, 2,000 feet from the south line and 200 from the west line of the Doctor Claypool farm, in the SW of Section 1, at a depth of 700 feet. This test is about 2 miles south from the 18-bbl. producer found on the Ca'lahan farm, in Section 25, Casey Township.

In Licking Township, Crawford County, Claud Southerland and others' test in the northeast corner of the P. A. Matheney farm, in the NW of NE of Section 23, drilled in a duster at a depth of 1,240 feet.

In Lawrence Township, Lawrence County, the Ohio Oil Co. is drilling No. 15 on the J. T. Riggs No. 3 farm, just east of Bridgeport in Section 10. In Dennison Township, same county, the Ohio Oil Co. is drilling No. 39 on the Smith-Neely farm, southeast of Bridgeport, in Section 2, Dennison Township, in the heart of the old producing area of 20 years ago. Phipps Blosser and others are drilling No. 1 on the Oliver Pond farm, Section 1, and several miles almost due south of Lawrenceville.

Central Ohio

The Central Ohio Field reported an even dozen completions, only one being an oil producer good for 5 bbls., two were dry holes and nine gas wells. In the Cleveland Field of Olmstead Township, Cuyahoga County, Hulse & Kundts, drilled No. 1 on the G. G. Kennedy 29 acres, in Lot 30, the well being 200 feet south of the road and 200 from the east line of the farm, which struck an im-

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AMBROSE POOL, KENTUCKY, SHOWS REMARKABLE STAYING QUALITIES

By Whit

BOWLING GREEN, Ky., Nov. 7.—The bringing in of a 250-bbl. initial producer in Ohio County, in the heart of the Ambrose Pool, shows that that pool has a large volume of oil below it, for many wells have been drilled during the past year or so that were equally good and the producing sand has most remarkable staying qualities. This new well is No. 7 on the Cora Wells farm, while century producers were found on the Mary Elmore farm in the Ambrose Pool and on the Mary Wilson farm in the Sunnydale Pool, all in Ohio County. In attempts to find extensions to the producing areas of Ohio and Daviess Counties, many dry holes are recorded, which is characteristic of Kentucky developments in all known parts of the State where development work has been made.

Eastern Kentucky failed to report even one completion and operations are getting close to a minimum, about the only active areas in that part of Blue Grass State being in Estill County where shallow wells are found and in the Beaver Creek section of the Floyd-Knott gas fields where nice gas wells come in with regularity.

The drill is kept busy in the western division, especially in Ohio, Barren, Daviess and a few other counties, with Ohio County far in the lead, although considerable work is planned for the southern portion of Daviess County and the eastern part of McLean County, where Dimmick Brothers recently brought in a nice production on the John Ratliff farm, near the town of Livia, that put 110 bbls. in storage the first 24 hours after being put on the pump. The real value of this find is not yet known as the storage facilities were filled and it will be some time until it can be pumped regularly. It is considered one of the best of the late finds and may mean the opening of another rich pool similar to the Ambrose Pool and the Sunnydale Pool, in Ohio County.

Lease Transfer

Another large block of acreage has changed hands, this time a local Owensboro operator transferred to the Ohio Oil Co., the largest operating concern in Kentucky, a batch of leases in the southern part of Daviess County, covering a total of 1,014 acres of leases that had been held in one lot since the opening of the Tri-County Field. The fact that the Ohio Oil Co. has entered this area means that it will be thoroughly tested. The territory transferred lies in the vicinity of Livia, Utica and Browns Valley, and indicates that the surroundings stack up favorably for the finding of commercial oil production, as geologists have looked over the area and appear to think well of the outlook.

Drilling Contracts

The Cumberland Petroleum Co., of Cleveland, Ohio, operating in the Lawrence-Johnson Counties, in the Weir Sand Field of eastern Kentucky, have now invaded Ohio County, and are said to have let a contract for the drilling of six wells on the Robert Hamilton farm, midway between the Ambrose Pool and the Sunnydale Pool along Rough River, which will mean an expenditure of close to $30,000. The Hamilton farm is to the southeast of the Ambrose Pool, northeast of Hartford, and Rough River runs through the big plantation.

Like the Union Oil & Gas Co., which had extensive holdings in the North Weir Field of eastern Kentucky, that at one time had close to 3,000 bbls. production

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CONTINENTAL

More and Better Wells in Eastern Field

Principally in Deep Sand Territory in Southeastern Ohio. Clinton and Niagara Limestone Furnish Best Producers

By D. S. Wakenight
Staff Correspondent, Eastern Fields

PITTSBURGH, Pa., Nov. 7.—Operators were a little more successful during the past week. More and better wells were completed, principally in the deep sand territory in southeast Ohio. For many months the Clinton sand territory and the Niagara lime has been furnishing nearly all of the good producers. It is only at long intervals that West Virginia completes better than an average well. Southwest Pennsylvania seems to be out of the running, not having furnished a large well since the first of the year. Most of the attention of eastern producers is being given to keeping the old wells producing to their full limit. The average size of most of them is small, but to let them stand idle they could not be brought back to the producing list.

Best Ohio Completions for Week

In the southwest quarter of Section 15, Jackson Township, Guernsey County, the Ohio Fuel Supply Co. completed in the Niagara lime No. 6 on the C. McCourt farm. The first 24 hours after it was drilled into the pay it produced 140 bbls. The total depth of the well is 3,690 feet. In the southeast quarter of the same section, Dr. C. A. Craig got a 35-bbl. producer in the same formation at a test on the Henry J. Lepahe farm.

In Lot 19, Hardy Township, Holmes County, the Empire Gas & Fuel Co. completed in the Clinton sand a test on the Phillip Collier farm. It is a natural producer good for 50 bbls. a day. In Section 21, Killbuck Township, the Kemrow company completed No. 3 on the Lloyd Sandles farm. It is a gasser in the Clinton sand, good for 2,000 000 feet.

In the northeast quarter of Section 20, Harrison Township, Perry County, the Pure Oil Co. got a 50-bbl. producer when it drilled a test on the M. T. Moore farm through the Clinton sand. In the same section and township, William Cline & Co. got a 35-bbl. producer at a second test on the J. L. Bennett farm.

In Section 14, Richland Township, Holmes County, the Ohio Fuel Supply Co. got a 5,000,000-foot gasser in the Clinton sand when it drilled its test on the Malissa Nanchester farm through the Clinton sand.

West Virginia Completions

On Leading Creek, Sheridan district, Calhoun County, West Virginia, the Hope Natural Gas Co. has completed in the Berea grit a test on the Manley Collins farm. It is a duster in the lower formation, but is a light gasser in the Big Injun sand. On Leather Bark Creek, Murphy district, Ritchie County, Deem Brothers & Co. have the rig completed for another test on the Smith heirs' farm. The location is 600 feet southeast of the test on the J. H. Rymer farm.

On the right fork of Breeden Creek of Twelve Pole Creek, the Public Gas Corp. has completed No. 16 on the Closterman estate. It is a gasser in the Maxon sand and is 600 feet south of production on the same farm. On Paw Paw Creek, Paw Paw district, Marion County, Victor Tennant has a light gasser in the Gordon sand at a test on the Jane Mayfield farm.

On McFarlan Creek, Murphy district, Ritchie County, the South Penn Oil Co. has completed in the Big Injun sand No. 9 on the Anna M. Wilson farm. It is dry in this formation, but showed for a 10-bbl. pumper when drilled through the gas sand. It will be filled back and shot in the gas sand and put to pumping.

In the Burning Springs district, Wirt County, Roberts Brothers have completed in the second Cow Run sand No. 155 on the Rathbone Oil tract. It is a very light pumper. This location is in one of the oldest producing districts in West Virginia. Operations in this district began before the Civil War.

Boone County Gassers

In Peytonia district, Boone County, the Pittsburgh & West Virginia Gas Co. has a gasser in the Berea grit on the T. E. B. Seiler farm. In Scott district, the United Fuel Gas Co. has a gasser on the Horse Creek Land & Coal Co.'s property. In Crook district, Siegel Workman has a gasser in the Big Injun sand at a test on the W. E. Money farm.

In Union district, Wood County, Sweeney & Nelson have a 5-bbl. pumper at a test on the G. H. Ralston farm. In Grant district, Pleasants County, Keith Thompson has a duster at his test in the Eliza and Edith Adams farm. In Jefferson district, M. C. Martin, Jr., has a very light pumper at a test on the M. J. Naish farm.

On Big Paw Paw Creek, Paw Paw district, Marion County, Victor Tennant has started to drill a test on the James Brock farm. On Robinson Run, same district, the Carnegie Natural Gas Co. has a rig up on the James Eddy farm. On Finches Run, Fairmount district, Marion County, the Mack Bell Oil & Gas Co. has started to drill on the W. S. Prickett farm.

On Lambs Run, Murphy district, Ritchie County, the West Fork Oil & Gas Co. has started to drill on the Lena Andrews farm. In Center district, Gilmer County, the Hope Construction & Refining Co. is drilling a test on the Elliott Stump farm. In Jefferson district, Pleasants County, the Oliver Oil Co. is drilling on the John Oliver farm. In the same district, the Bailey Gas Co. is drilling No. 6 on the Calvin Templeton farm.

In Fairmount district, Marion County, the Mack Bell Oil & Gas Co. has started to drill on the W. S. Prickett farm. In West Union district, Doddridge County, Nay & Kintzner are fishing for a string of tools on the M. D. Minear farm.

Calhoun and Roane Counties

In Center district, Calhoun County, the Hope Natural Gas Co. has a rig up on the Creed Yoak farm. In Sherman district, W. H. Bickel is drilling on the Michael Knight farm. In Geary district, Roane County, the United Fuel Gas Co. has made locations for tests on the M. D. Sergent and G. A. Wright farms. In the same district, the same company is building a rig on the J. S. Allen farm. In the same district, Douglas Brothers are rigging up on the N. F. Sergent farm. In Harper district, the Producers Oil & Gas Co. is cementing a cave at 1,190 feet on the David I. Horner farm. In Spencer district, Godfrey L. Cabot is due in the Big Injun sand on the Emma Hildreth farm.

On McFarlan Creek, Murphy district, Ritchie County, the South Penn Oil Co. has the rig completed for No. 11 on the H. S. and R. Wilson farm. In the same district, the same company has completed the rig for No. 3 on the Cochran-Hays farm. On Mayberry Run, the Daniel O'Day estate has the rig up for a test on the J. Kerby farm. In Logan district, Logan County, the Peck Oil & Gas Co. has the rig completed for a test on the Peck heirs' farm. In McElroy district, Tyler County, Sutton Brothers have started to drill on the J. V. Blair farm. In the same district, J. D. Foley has made a location on the Rebecca Singer farm.

On McFarlan Creek, Murphy district, Ritchie County, the South Penn Oil Co. is spudding on the H. S. and E. Wison farm. In the same district and on the same stratum, Cochran & Co. have started to spud on the George heirs' farm. In the same district, the South Penn Oil Co. has started to drill No. 4 on the Charles Bickerstaff farm.

On Little Creek, Spencer district, Roane County, Godfrey L. Cabot completed in the Big Injun sand a test on the Emma Hildreth farm. It is a gasser good for 500,000 feet.

In Center district, Calhoun County, McCall & Co. are due in the Big Injun sand on the V. Boggs farm. In Lee district, the Calhoun Oil & Gas Co.'s test on the Dollie J. Brannon farm is dry in the Big Injun sand. In Center district, W. H. Bickel has a gasser in the salt sand at No. 5 on the L. E. Betts farm. In Sherman district, W. H. Bickel completed a Big Injun sand gasser at a test on the Emma Wilson farm.

In DeKalb district, Gilmer County, the Hope Natural Gas Co. has drilled down old No. 7 on the Drusilla Hardman farm. It is a gasser. In Battelle district, Monongalia County, the Carnegie Natural Gas Co. has a gasser in the 50-foot sand at a test on the O. L. Talkington farm.

In Center district, Gilmer County, the Chartiers Oil Co.'s No. 5 on the James S. Stump farm, drilled in more than a week ago, is still averaging 50 bbls. a day from the Maxon sand.

Clay County

In Henry district, Clay County, the South Penn Oil Co. has completed in the Big Injun sand No. 4 on the James Phillips farm. It is good for 25 bbls. a day, which is better than the late average of the wells in this development. The location is 550 feet northwest of No. 2 on the same farm.

In Green district, Wetzel County, J. E. Snyder and others have completed in the Big Injun sand a test on the J. E. Snyder farm. It is a fair gasser. On Georges Run of McElroy Creek, McElroy district, Tyler County, the Hope Construction & Refining Co. has drilled No. 4 on the Hannah Merritt farm into the Maxon sand and showing for a 3-bbl. pumper. They will not stop to test in the Maxon and are now drilling it to the lower sands.

In Grant district, Pleasants County, C. E. Park has drilled through the Big Injun sand a second test on the Graham heirs' farm. It is a duster. In the same district, Swingle Brothers are drilling a test on the Fulton Holdren farm. In Jefferson district, the Sharp Farm Oil Co. has started to drill a test on the George Sharp farm.

Gasser in Monongalia County

In Clay district, Monongalia County, the Pittsburgh & West Virginia Gas Co. has now drilled its test on the G. T. Moore farm through the fifth sand. It is a light gasser. In Center district, Wetzel County, the Hope Construction & Refining Co.'s test on the J. K. Long farm is a gasser in the Gordon sand. In Church district, same county, the Manufacturers Light Co. has a gasser in the same formation at a second test on the Elizabeth Oliver farm.

On Hacker Creek, Hackers Creek district, Lewis County, the McCall Drilling Co. has completed in the Benson sand a test on the L. C. Thompson farm. It is a light gasser at a total depth of 4,310 feet. In Ten Mile district, Harrison County, C. T. Arnett has a fourth sand gasser at a second test on the Ferd Rodgers farm.

Drilling Test Wells

In Union district, Lincoln County, G. T. Ray & Son have started to drill on the Mathias Stowers farm. In Barboursville district, Cabell County, Ortman & Shipe have made a location on the William Robertson farm. In Logan district, Logan County, the Peck Oil & Gas Co. is drilling at 600 feet at its wildcat on the Peck heirs' farm. In Union district, Lincoln County, Roy & McComas have started to drill on the Randolph Diaz farm.

On the waters of Breeden Creek, Harvey district, Mingo County, the Public Gas Corp. has started to drill No. 28 on the Logan Cannel Coal Co.'s property. In Union district, Ritchie County, W. A. Bickerstaff has the rig completed for a test on the Z. W. Wright afrm. On McFarlan Creek, Murphy district, the South Penn Oil Co. is drilling to the lower sands old No. 1 on the B. Burke farm.

Harrison County

In Clark district, Harrison County, the Clarksburg Light & Heat Co. has rig material at a location on the G. B. Stout farm. In Sardis district, Hugh B. Burke has made a location on the Jesse Hannah farm. In Hackers Creek district, Lewis County, the McCall Drilling Co. is down 4,290 feet on the L. C. Thompson farm. In Liberty district, Marshall County, the Manufacturers Light & Heat Co. is hauling tools to a second location on the Mary J. Fry farm. In the same district, the same company is drilling another test on the John E. McCleary farm. In Paw Paw district, Marion County, the Owens Bottle & Machine Co. has started to drill on the William Valentine farm.

In Greene district, Wetzel County, Carr Brothers and others have the rig completed for a test on the W. S. and E. F. Morgan farm. In Otter district, Braxton County, the Brownell corporation has shut down at 1,710 feet on the J. M. Boggs farm. In DeKalb district, Gilmer County, C. B. Lewis and others have started to drill on the F. Davis farm.

In Grant district, Ritchie County, Robert Wyatt & Co. completed in the salt sand No. 12 on the West Virginia tract, it is a 4-bbl. pumper. In Union district, Wood County, the South Penn Oil Co. drilled down to the Berea grit No. 1 on the Nettie M. Dye farm. It is good for not more than 1 bbl. a day. It was formerly a light producer in the second Cow Run sand.

On Grass Run, Ten Mile district, Harrison County, the Garrett Lyons Gas Co. has drilled its test on the Ferd Rodgers farm through the fourth sand and it is a gasser.

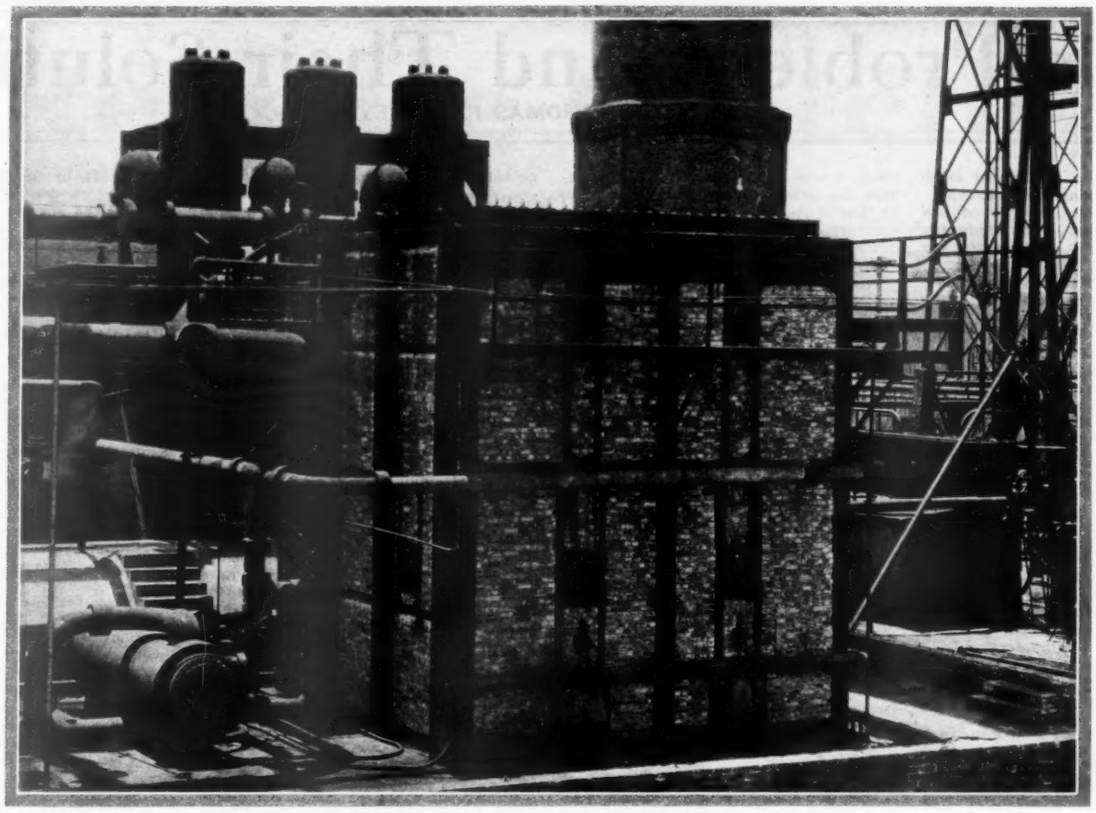
On Crummies Creek, Lee district, Calhoun County, the Calhoun Oil & Gas Co. has drilled its test on the D. J. Brannon farm through the Big Injun sand and dry. On Barnes Run, Sherman district, F. F. McIntosh has a gasser in the same formation at a test on the W. H. Slider farm. On Falls Run, Lee district, F. F. McIntosh has a very good gasser at a test on the Morgan-Fox farm. When tested it showed for 5,000,000 feet a day. On Steer Creek, Center district, the Hope Construction & Refining Co. has a light gasser in the Big Injun sand at a test on the Elliott Stump farm.

Southeast Ohio

The southeast Ohio fields again made a poor showing at the close of the week. Two dusters and one light pumper were all that were completed.

In Lot 2, Mary Ann Township, Licking County, the Ohio Fuel Supply Co. completed in the Berea grit a second test on the F. L. Evingston farm. It is good for 12 bbls. a day. In Section 18, Killbuck Township, Holmes County, the East Ohio Gas Co.'s test on the D. N. Snow farm is a duster. In Section 28, Newport Township, Washington County, Carney & Riley have a duster in the

(Continued on Page 114)



A Typical Foster Tube Still Performance

THIS Foster Tube Still, operating at 1500 barrels daily and taking 76 per cent overhead, has shown 72 percent overall efficiency on several test runs.

It replaces four 400-barrel shell stills at a considerable saving of space, attendance and fuel, and was installed at small alteration cost on a portion of the foundation of the old shell stills.

Your own refinery operations may permit similar economies through the use of Foster Wheeler apparatus. Write for full information.

Foster Wheeler Corporation

A consolidation of Power Specialty Co. and Wheeler Condenser and Eng. Co.

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FOSTER WHEELER

FRACTIONATING TOWERS HEAT EXCHANGERS
STEAM JET AIR PUMPS SUPERHEATERS
TUBE STILLS VACUUM PUMPS
WATER COOLED FURNACE SURFACES
BRASS AND COPPER TUBING AND PIPE

AERO UNIT COAL PULVERIZERS
AIR HEATERS CENTRIFUGAL PUMPS
CONDENSERS COOLING TOWERS
ECONOMIZERS EVAPORATORS
EXPANSION JOINTS FEED WATER HEATERS

Field Problems and Their Solution

EDITED BY THOMAS F. SMILEY

In order that men connected with the drilling, producing and transporting branches of the petroleum industry may procure quickly a solution of many problems confronting them from time to time in their work, The Oil and Gas Journal has arranged with leading engineers and other recognized authorities to answer questions submitted by readers of this publication pertaining to the work of drilling and producing crude oil and transporting this product.

Everyone is invited to submit questions freely. These questions will be submitted to proper authorities by Mr. Smiley, who edits the page, and answers, based on the best available information, will be published. Each question should give as much detail as possible, especially where it relates to matters where depths of sands, types of sands and operations on adjoining properties would have a bearing on the problem involved. The source of all questions will be considered as confidential and only initials will be published in connection with the question.

In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or practices which are improvements.

I am experiencing trouble in this field in drilling through a gas sand. Is there any way of adding to the weight of the mud fluid so that I can drill through this sand without the gas blowing out? —H. H. P.

Yes, compositions for this very purpose are manufactured and have a wide distribution under various trade names. They are said to perform the work satisfactorily.

We have three leases that are old pumpers, one in the 1,100-foot sand, one in the 1,700-foot and one in the 2,400-foot. None is near enough to a gasoline plant to have the advantage of vacuum. It takes us about half a day to pump off the wells and we have been wondering if it would help our production if we would install a vacuum pump and run it at the same time that we run the power to pump the wells.—J. R. O. C.

The use of vacuum is not recommended. It pulls the gas from the sand, thus increasing the viscosity of the oil remaining in the hole and to that extent decreasing the ultimate recovery. Another way of putting it would be to say that the use of vacuum lowers the gravity of the oil and thus retards its flow to the hole. Repressuring might offer a solution of your problem. If you will write again, giving the type of sand, the working fluid level and the production methods employed on neighboring leases, it may be possible to offer you some helpful suggestions.

What is your idea as to the relative value of the gas lift and the pump? Which do you think is really the better? —W. T. M.

The known facts in hand at this time are not sufficient to determine which is the better.

I have 80 small producing wells and I am considering repressuring. How many wells should I use as key wells?—W.A.J.

Under normal conditions one key well to each six or eight producing wells is probably sufficient in depleted fields. In fields where gas is introduced to maintain the pressure in the oil sands, one to four is the usual present practice, but the correct ratio is still a matter of experiment, and probably will always be a variable.

Can the production of a well on air or gas lift be curtailed without injuring the well? If so, how?—B. A. N.

This can be accomplished by raising the tubing, by holding the pressure in the trap or by decreasing the amount of input air or gas. Any one of these methods, if not carried to the point of causing cessation of flow, will reduce production without damaging the well.

I have heard that there is a way of measuring the crookedness of a hole. Can you tell me what the method is?—R.O.H.

You will find a complete and interesting answer to your question in an article, "Underground Survey of Deepest Well," by Alexander Anderson, in The Oil and Gas Journal for September 9, 1926. The article describes a survey for deviation and direction of the Chanslor-Canfield Midway Oil Co.'s No. 96 Olinda in Orange County, California, the deepest well in the world. This survey showed the hole to be 517 feet off vertical at 6,000 feet.

Does the amount of gas produced with each barrel of oil increase or decrease as the rock pressure in the pool declines?—J. K. B.

Your question opens up a wide field for discussion. It may be stated as a general proposition, however, that the amount of gas produced with each barrel of oil increases as the rock pressure declines. There are possible exceptions to this general rule, for example in fields where the amount of gas in the sand is small and where water pressure is the principal mover of oil in the sand. It must be remembered, moreover, that the rate of increase is not the same with all producing methods. For instance, when the gas lift is used correctly the rate of increase may be retarded greatly. In normal pumping operations the increase is slower than when wells are flowing naturally. In general the use of vacuum in flowing wells increases the amount of gas produced with each barrel of oil.

Is there any way of combating possible damage to casing from corrosion here in West Texas pools? If there is anything that can be done I would be very glad to know what it is.—J. L. H.

It is suggested that you use the largest possible casing for the water string and run the flow through the production string, which of course should be packed off from the water string at the well head. The size of the production string will depend on the capacity of the well. This procedure should minimize corrosive action on the casing, since the flow would be directed through the production string and while a certain amount of corrosion may take place on the casing, most corrosion would take place in the production string. The production string can be replaced readily, but it often is difficult, sometimes impossible to replace the casing.

In figuring on the amount of cement I ought to get for drilling operations it would help me if I knew just how much space one sack of cement will take up between the casing and the wall of the well. Can you give me this information?—W. C. M.

You can get the information by writing to the United States Bureau of Mines in Bartlesville, Okla. The bureau has tables showing the amount of cement required for filling spaces between different sizes of casing and the amount needed as fill-up between the outside casing and the wall of the hole.

At what rate should gas or air be introduced into sand for repressuring?—E. H. S.

To prevent bypassing of gas or air as much as possible it is suggested that repressuring be conducted slowly. Greater production of oil attends gradual introduction of gas or air than when the process is hurried in an attempt to obtain immediate results.

I have 11 wells of settled production that are yielding an average of about 15 bbls. a day. All of them are about 1,500 feet deep. The initial production of these wells was on the average of about 200 bbls. a day. I have been reading about the gas lift in your magazine and I have been wondering if I could increase the production of my wells by putting them on the lift.—M. H. G.

It is assumed that your wells are pumped off, so there is no apparent reason why their production should be increased by using the gas lift.

I am sending you sample of a thin streak of formation that is causing me a lot of trouble in drilling. I have been drilling with cable tools, and they stick when I drill into this formation. Fishing jobs caused by this trouble have cost our company a good deal of money. Do you think there is any way of getting around this difficulty?—J. M. C.

The specimen you have sent is a fine grade of clay. Evidently your use of the ordinary amount of water in drilling through this formation creates a stiff, sticky mixture that is causing your trouble. If you will use more water, thus forming a thinner fluid, your difficulty probably will disappear.

I am bothered by paraffin in my wells. Can you tell me how it can be removed or how it can be prevented, if that is possible?—F. R. N.

The paraffin problem—prevention where this is possible and economically practicable, and removal where prevention is not advisable—is receiving the earnest study of scientific men. The paraffin, as you presumably know, is simply a deposit of the wax content of the oil. Some oils have higher wax contents than others. Removal of paraffin can be accomplished in several ways. Where it is to be removed from the sand the electric heater is being used with success. The heater is left in the hole for several days until the face of the sand has been heated above the congealing point. Then pumping is resumed while the sand is still warm to prevent paraffin from settling again on the face of the sand as the temperature lowers. This and a patented burning process in which a flame is maintained at the bottom of the well are probably the best methods known at this time for the removal of paraffin from sand. For removing paraffin from tubing and casing the "paraffin hook" and the "paraffin knife" offer practical and inexpensive devices.

You will obtain information of special value on this subject in The Oil and Gas Journal for October 20, 1927. Articles on "Paraffin Troubles in Eastern Fields," by Frank M. Brewster, and "Handling Congealing Oil and Paraffin," by C. E. Reistle, Jr., offer thorough discussions. The same number contains a helpful article on "Problems in Handling Panhandle Oil," by William Victor Vietti and William A. Oberlin. In The Oil and Gas Journal for November 3, 1927, is an article on the use of electricity in Wyoming fields, by A. W. Peake and F. O. Prior, which describes the use in that State of the electric heater.

What is done when casing is lost in a well? I understand one concern uses an acid which eats away the pipe, the system being to fill the pipe with sand and pour in a quantity of the acid, which filters through and successfully dissolves the pipe.—W. S. T., Paris, France.

Acids have been used in a few cases to dispose of tools lost in the hole and defying all the ordinary methods of recovery. The acids are not introduced in the way you describe, however.

Acids not infrequently are employed in fishing jobs, but usually as supplementary to the use of fishing tools. Under the direction of an expert chemist a combination of hydrochloric, hydrofluoric and nitric acids is resorted to when a drilling tool or casing is so frozen in the hole that it withstands the customary measures of recovery. The effect of the combination of acids is to decompose the limestone formation in which the lost implements have become embedded and thus make them much easier of withdrawal. In the absence of plenty of salt water in the well a soda solution is used to wash out the hole to neutralize the acid with which the limestone has been impregnated.

When this process fails to bring up the lost implement the same combination of acids has been employed in a few instances literally to eat away the drilling tool or casing. This procedure, being really in an experimental stage, has not received either approval or disapproval of scientific authorities. One objection suggested has been that an acid strong enough to disintegrate a steel pipe or drilling bit would be likely to permeate the surrounding sand to such an extent that it would injure any casing set in the hole afterward. This objection is met by advocates of the method with the assertion that the neutralizing solution employed after completion of the job removes all such danger.

If the "melting away" process is resorted to in cases that will not yield to any other, it should be supervised by a chemist who knows the proportion of each of the acids to use. A gas mask has to be worn by the person applying the acids.

The current number of The Oil and Gas Journal contains an article, "Ingenious Tools for Fishing Jobs," which should interest you in this connection.

In our first use of rotary tools we lost a bit. All our efforts to recover the bit failed and after we had lost a lot of time in this way we decided to let it stay in the hole. We may run into the same situation again and I would like to know what is the best thing to do the next time. Can you tell me something about this?—A. A. F.

There is little to tell you for the reason that you probably did the right thing. A common practice among rotary drillers when a bit is lost is to drill on past it when ordinary measures to recover it fail. If the usual fishing methods employed in such cases prove futile, further time consumed is likely to be fruitless. In other words, time and expense are as likely to be saved by drilling on past the lost bit.

Are there any core-barrels for getting cores in hard rock formation when drilling with rotary tools? I have wanted to take cores of drilling wells and tried the basket core-barrel, but did not have any luck, the formation was so hard.—B.F.J.

Bits specially designed to take cores in hard formations such as you have encountered are manufactured now and you are referred to the advertising pages of The Oil and Gas Journal.

Reverse Clutches
do not fail
that are designed
to pass their loads
onto the capable races
of "The Standardized Oil Field Bearing"

AMERICAN HEAVY DUTY TYPE "C" ROLLER BEARINGS

1 They permit a constantly tight tension on the belt without danger of burning the bearings.

2 They make it possible to design the clutch so that the lubrication system will be absolutely leakless.

3 They permit the clutch to handle the inevitable overloads without failure or risk of failure.

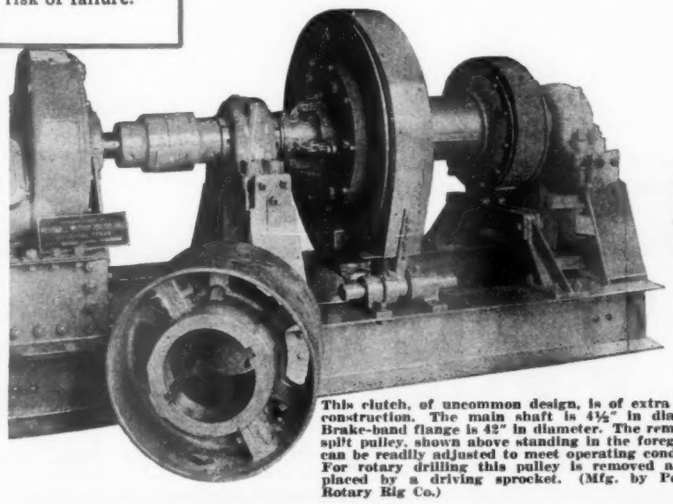
Here are six strong reasons why the reverse clutch should be equipped with a bearing that will relieve strain on the clutch, eliminate burned out bearings, prevent leaky lubrication and guarantee there'll be no breakdowns. Any one of these reasons is of such importance as to warrant the use of American Roller Bearings. When their total importance is once calculated, in terms of their value on the jobs, demand for *improved* clutches will be even greater than it is now.

4 They insure the longer life of the clutch.

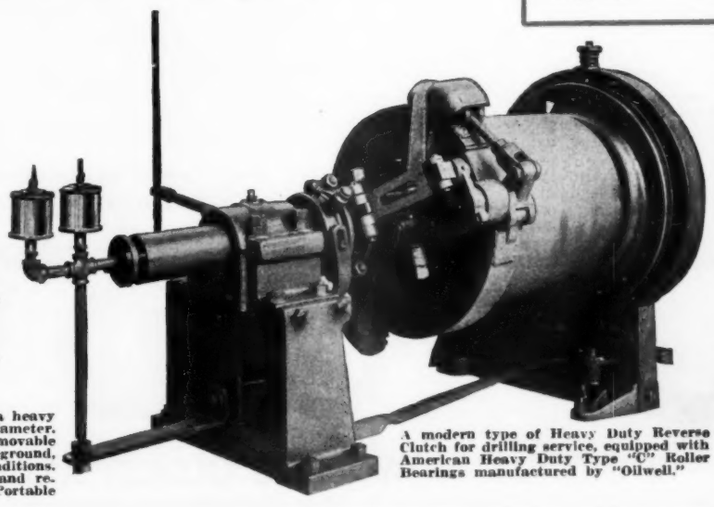
5 They eliminate much of the general attention and repairs required by clutches having plain bearings.

6 They assure smoother operation; smoother starting; smoother reversing; smoother slowing down and stopping.

AMERICAN ROLLER BEARING CO.
.. PITTSBURGH, PENNA. ..



This clutch, of uncommon design, is of extra heavy construction. The main shaft is 4½" in diameter. Brake-band flange is 42" in diameter. The removable split pulley, shown above standing in the foreground, can be readily adjusted to meet operating conditions. For rotary drilling this pulley is removed and replaced by a driving sprocket. (Mfg. by Portable Rotary Rig Co.)



A modern type of Heavy Duty Reverse Clutch for drilling service, equipped with American Heavy Duty Type "C" Roller Bearings manufactured by "Oilwell."

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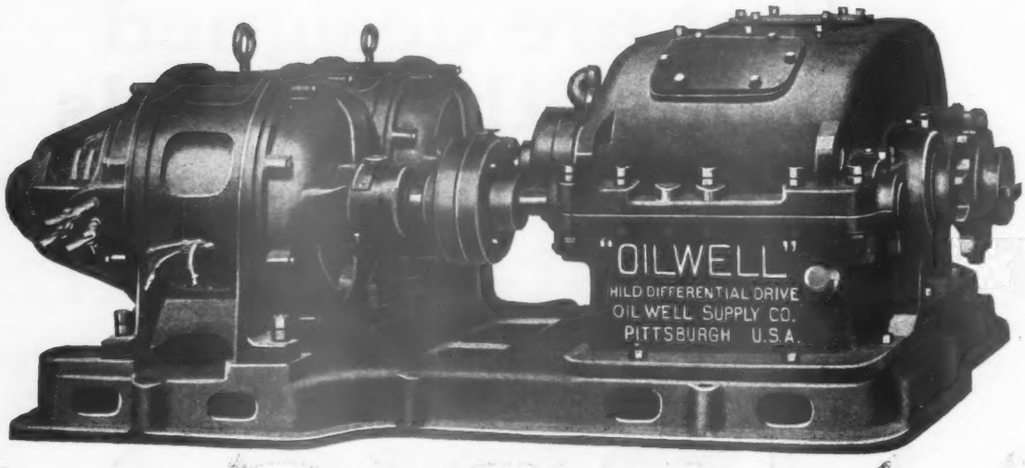
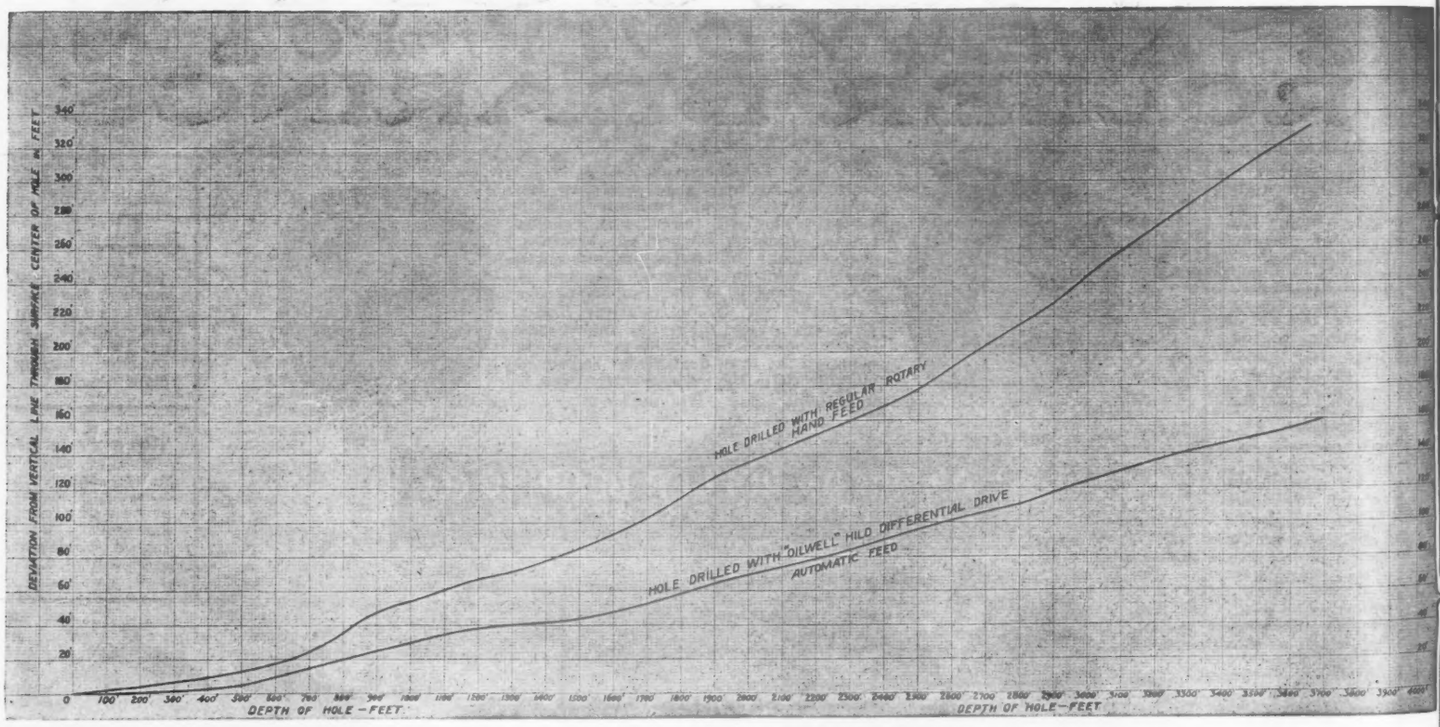
ADVANCE IN DRILL



The "OILWELL" Hild Differential Drive


DEVIATION FROM VERTICAL LINE THROUGH SURFACE CENTER OF HOLE IN FEET
HOLE DRILLED WITH REGULAR ROTARY HAND FEED
HOLE DRILLED WITH "OILWELL" HILD DIFFERENTIAL DRIVE AUTOMATIC FEED
DEPTH OF HOLE—FEET
DEPTH OF HOLE—FEET

Graph showing deviation of holes from the vertical
(Surveyed by the Alexander Anderson Method)

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WORLD'S OLDEST AND LARGEST MANUFACTURERS OF OIL FIELD EQU

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THE "OILWELL" HILD DIFFERENTIAL DRIVE

(Licensed by Halliburton)

THE FIRST successful automatic feed and control developed commercially for Electric Rotary Drilling was the **"OILWELL"** Hild Differential Drive.

Three years have demonstrated the practicability and economy of this type of rotary installation, and records of service in oil fields throughout the world have proven its superiority.

Only slight changes have been made in the design of the **"OILWELL"** Hild Differential Drive since the first unit blazed the way to higher efficiency and greater accomplishment in rotary drilling. The first installation is still in use after drilling over 50,000 feet of hole with no repairs.

With this device the bit is automatically fed and automatically retrieved or lifted upon suddenly encountering hard formations.

Additional advantages are:

1. Faster Drilling.
2. Straighter Hole. (See graph on opposite page).
3. Cheaper Drilling—less wear and tear on the drilling equipment.
4. Deeper Drilling Range.
5. Uniform Feed Regulation for Coring.

For Further Information Inquire at Any of Our 100 Branches

★

...running from 250[illegible] ft. maximum to 616.1 ft. maximum with an average of [illegible] ft. on a 5000-ft. hole.

Automatic Electric Rotary Drilling

The most signal advance in drilling equipment has been made through the introduction of the Hild automatic differential electric drive, which has now been in use for approximately 3 years. The first outfit was installed on the property of the Chanslor-Canfield Midway Oil Co. at Torrance, Calif., in December, 1923, as an experiment. It was successful from the start and has been in continuous use ever since. It is now drilling its fourteenth hole, has drilled a total of 50,000 ft. with only minor repairs, and is still in good condition. The cost of drilling with the automatic electric rotary shows up favorably with that of the hand-fed electric rotary. It has the additional great advantage of drilling a straighter hole than can be drilled by hand and at a greater speed. The pressure on the bit is automatically varied according to the resistance encountered in the formation, thereby eliminating to a great extent the human element. This gives the driller more freedom and enables him to supervise other work about the rig.

In soft formations maximum drilling speed is maintained, and as the bit enters harder rock causing the drilling motor to slow down, the regulating motor immediately takes up part of the weight of the drill pipe, which removes some of the load from the bit and thus eliminates crowding, the frequent cause of divergence in rotary holes. The outfits are very popular with the drilling crews and are affectionately called "push-button rigs."

Enough holes have now been drilled with the automatic rigs to establish the following advantages: 1. A 50 per cent reduction in the number of "twist offs" of the drill pipe; 2. a reduction in wear on the drill pipe, tool joints and casing; 3. a decrease in upkeep expense on wells after being placed on pump; these advantages all being due to the straighter hole drilled.

The automatic outfit consists of a differential gear unit with a 75-hp. drilling motor, a 35-hp. regulating motor and necessary equipment. The motors are capable of developing 435 horsepower.

[illegible] Works

**Extract from a paper by Robert R. Boyd in collaboration with Ward B. Blodget, presented at New York meeting, A.I.M.E., February, 1927.*

SUPPLY CO.

EQUIPMENT

BRANCH STORES IN ALL OIL FIELDS

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MEN KNOWN IN OILDOM

H. J. Witz

H. J. Witz, recently appointed manager of the wholesale and jobbing division of the Edington Gasoline & Refining Company, of Los Angeles, Calif., is another example of the gravitation of railroad men into the oil business.

Born in Warren, Pa., Mr. Witz, like many other men now prominent in the oil industry, worked first for a railroad, spending three years with the Pennsylvania Railroad Company.

His first experience in the oil industry was with the Chelsea Refining Company. When this company was taken over by the Pure Oil Company he continued with it, in 1916 becoming assistant general manager of the western refining division.

In 1922 and 1923, Mr. Witz was an independent producer in the Ranger, Tex., district. In the latter year he went to the Rio Grande Oil Company at El Paso, Tex., and later was transferred to Los Angeles, Calif., where he had charge of all crude oil purchasing, refining and marketing divisions for that company on the Pacific Coast.

In 1925 he became general manager of the refineries for the Julian Petroleum Corporation.

In December, 1926, when the MacMillan Refining Company built its new plant in Borger, Tex., in the Amarillo district, it sent Mr. Witz there as general manager of this operation.

Like some other eastern oil men who have once located in California, the lure of the Pacific Coast country operating conditions was strong for Mr. Witz and he returned to the Coast in June, 1927.

The Edington Gasoline & Refining Company, with which Mr. Witz has formed a new connection, is one of the smaller marketing organizations on the Pacific Coast, founded by C. B. Edington several years ago. He enters that company under a partnership agreement.

PERSONAL PARAGRAPHS

Carl Dresser, oil producer of Tulsa, Okla., is visiting members of his family at Bradford, Pa.

* * *

E. DeGolyer, of New York, president of the Amerada Petroleum Corporation, has spent a week in Tulsa, Okla.

* * *

James P. Flanagan, independent producer of Tulsa, Okla., is home after a week spent on the Atlantic Seaboard.

* * *

W. W. Mattison, chairman of the American Petroleum Institute committee on accounting, was in Los Angeles, Calif., for several days recently, consulting with the local committee of which Rodney Durkee is chairman.

E. F. Conners, formerly vice president of the Independent Oil & Gas Company, is spending a few weeks in Pittsburgh, Pa.

* * *

George A. Shaner, of the Carter Oil Company's gasoline department is back in Tulsa, Okla., after a trip through the fields.

* * *

R. H. Hubbell, of the Hill-Hubbell Company of San Francisco, Calif., is en route home, after a tour of the Mid-Continent fields.

* * *

N. C. McGowen, vice president of the Palmer Corporation, has returned to Shreveport, La., after a two months' trip in the East.

* * *

James H. Satterwhite, general manager of Westcott & Greis Company, of Tulsa, Okla., is making a trip through the Texas fields.

* * *

T. M. Magee, Bovard, Pa., retired superintendent of the Southwest Pennsylvania Pipe Line Company, was a recent Pittsburgh, Pa., visitor.

* * *

Alexander Anderson, of Fullerton, Calif., inventor of the Anderson oil well survey apparatus, has returned from a business trip to Europe.

* * *

S. E. Gilbert, scout for the Roxana Petroleum Corporation in West Texas, journeyed to Dallas to attend the Vanderbilt-Texas football game.

* * *

T. R. Jones, president of the Oklahoma Contracting Company, of Dallas, Tex., has returned from a week's trip to Denver and Colorado Springs, Colo.

* * *

L. V. Surtees, of the staff of the Mid-Continent Petroleum Sales Corporation, was called to his home in the East by the death of his father early last week.

* * *

L. S. Allen, of Tulsa, Okla., district sales manager of the Central Alloy Steel Corporation, has returned to his desk after a trip over the Kansas fields.

* * *

R. S. Lytle, of the Petroleum Securities, has returned to Los Angeles, Calif., following a few weeks spent looking over the situation in Pecos County, Texas.

* * *

Harry Crichton, of the land department of the Standard Oil Company at Shreveport, La., has been away from his desk for three weeks on account of illness.

* * *

M. O. Rife, superintendent of production for the Gulf Refining Company in North Louisiana and Arkansas, has returned to Shreveport, La., from a trip East.

* * *

M. M. Poe, general counsel for the Ohio Oil Company, has returned to his home in Findlay, Ohio, from a business trip to the company's Shreveport, La., headquarters.

* * *

Jim Foster has rejoined the scouting organization of the Marland Oil Company at San Angelo, Tex. He was formerly with the company in the same capacity several months ago.

* * *

J. Edwards Jones, of New York City, a holder of many Oklahoma royalties, spent a few days in Tulsa last week, and visited his former home at Fredonia, Kans., before returning East.

* * *

George F. Getty, one of the largest individual producers in California, has returned from a trip abroad, having spent the month of September touring Europe with Mrs. Getty.

* * *

James B. Fisher, chief engineer of the Waukesha Motor Company, sailed on the Aquitania for Europe, to visit motor and automobile manufacturing plants in England, France, Italy and Germany.

* * *

L. J. Bell, of Oklahoma City, Okla., secretary of the American Tank Company, visited in Shreveport, La., in the course of a tour through that territory, going from Shreveport to Houston, Tex.

* * *

Mrs. Rae Gregory has returned to Petrolia, Ontario, from Maracaibo, Venezuela, where Mr. Gregory is engaged in drilling. Mr. Gregory accompanied her as far as Curacao, Dutch West Indies.

J. J. Conry, general superintendent of the Carter Oil Company, was a visitor in Ardmore, Okla., last week when he attended the quarterly meeting of the south Oklahoma district employes of his company.

* * *

Maj. B. A. Hardey, vice president and general maager of the Greenwood Production Company, producing member of the Moody-Seagrave gas interests in East Texas and North Louisiana, has returned from New York.

* * *

C. R. Minor, vice president of the Gulf Refining Company, has returned to his desk in Shreveport, La., after a vacation trip through the East following the annual meeting of executives of the Gulf organization in Pittsburgh, Pa.

* * *

W. L. Stratton, general superintendent of the Standard Oil Company, has returned to Shreveport, La., from a tour of the West Texas fields with a party of Standard Oil Company of New Jersey executives as guests of the Humble Oil and Refining Company.

* * *

Harry H. Hill, chief petroleum engineer of the United States Bureau of Mines, has been making a tour of inspection of fields in the Mid-Continent area. He was at the Bartlesville, Okla., station of the bureau during the latter part of last week and then visited the Seminole area.

* * *

F. H. Schouten, formerly district geologist in San Angelo, Tex., for the McMan Oil & Gas Company, has resigned to go with the Dixie Oil Company, succeeding C. E. Cook who resigned to go to Austin, Tex. Jack Giles, of the McMan company's Tulsa, Okla., office, has been sent to San Angelo to replace Mr. Schouten.

* * *

William A. Knapp, vice president and sales director of the Butler Manufacturing Company, of Kansas City, Mo., and C. C. Crouch, vice president and manager of the Minneapolis, Minn., office, are back from an 800-mile vacation tour of the Minnesota lake district. They brought with them pictures to back up stories of big fish caught.

* * *

Kyrle Kellogg, who was a well-known driller in the Eldorado, Kans., Field 10 years ago and also drilled in the Drumright-Oilton district of Oklahoma, saved the lives of his wife and a woman friend at Pascadaro Beach, Calif., recently. The Santa Cruz News contains a glowing account of Kellogg's heroic exploit in rescuing the women from drowning.

* * *

Weston Payne, former production manager for the Marland Oil Company in the McCamey district, West Texas, and recently independent operator in that area, is in South America supervising the installation of some gasoline plants and air pumps on the Island of Trinidad for the Trinidad Oil Company. On the completion of this work Mr. Payne will return to San Angelo.

* * *

Harry L. Horning, president of Waukesha Motor Company, of Waukesha, Wis., and president of the Motor & Accessory Manufacturers Association, sailed on the Aquitania for an extended European trip, accompanied by Mrs. Horning. He will visit England, France, Germany and Italy studying business conditions and new technical developments of interest to the automotive industry.

* * *

Dr. W. Van Holst Pellekaan, of St. Louis, Mo., chief geologist for the Roxana Petroleum Corporation, and T. K. Harnsberger of Tulsa, Okla., chief geologist for the company in Oklahoma, accompanied by their wives, are making a combined business and pleasure trip to West Texas. John I. Moore, chief of the Roxana corporation's geological forces in the San Angelo, Tex., district, piloted them through the various fields.

* * *

W. RE. Brown has resigned as editor of Natural Gas, and is now director of the Utility News and Information Bureau of Pittsburgh, Pa. He will continue his office at the old headquarters of the Natural Gas Association, 905 Oliver Building, Pittsburgh. Mr. Brown has been Wrinkle editor of the Natural Gas Association for the past 10 years and in that capacity he has developed many new ideas and devices. Seven years ago he founded Natural Gas. While its editor he was also new business manager of the Ohio Fuel Gas Company, in Columbus, Ohio.

"Reamers" for HUGHES ROCK BITS in SEMINOLE

Seminole — recognized as the greatest High Gravity oil field in the world — offers complete proof of the speed, safety and economy of

Hughes Rock Bits

The majority of hole drilled in this great field was drilled successfully with Hughes Bits.

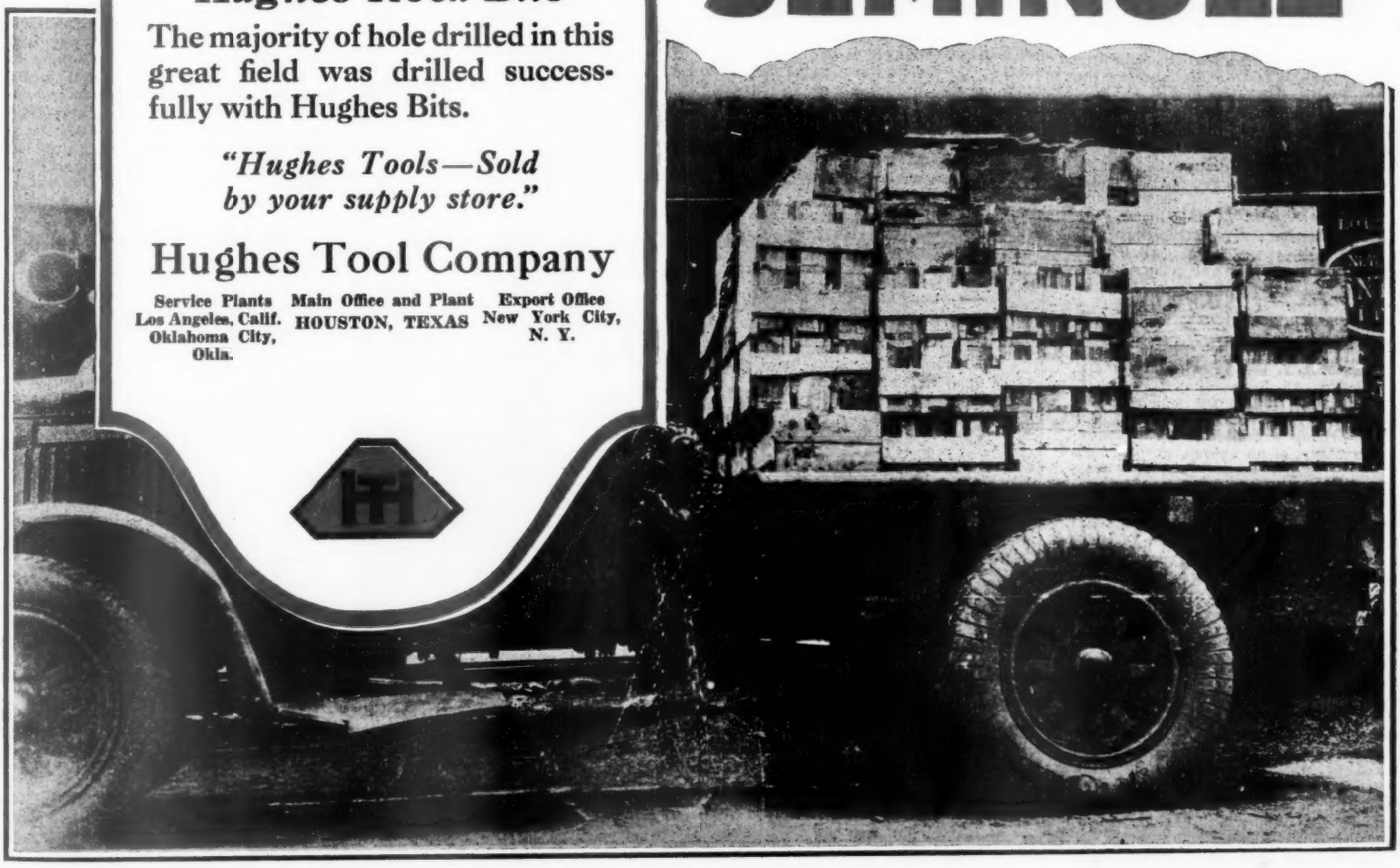
"Hughes Tools—Sold by your supply store."

Hughes Tool Company

Service Plants Los Angeles, Calif. Oklahoma City, Okla.

Main Office and Plant HOUSTON, TEXAS

Export Office New York City, N. Y.



EQUIPMENT AND SUPPLIES

BUTLER MANUFACTURING CO. HAS MORE SPACE

A building expansion program has just been finished by the Butler Manufacturing Co. of Kansas City and Minneapolis at its Kansas City office and plant. The structures erected are of ready-made steel and of a type the company manufactures and shows their flexibility of design.

The plant in Kansas City comprises more than nine acres of which five acres of floor space is under roof. The Minneapolis branch's land area is more than five acres, of which three acres of floor space is under roof.

The Butler Manufacturing Co. was started in 1901 by C. R. Butler, chairman of the board of directors; E. E. Norquist, present president and general manager, and N. W. Butler. The first product was galvanized steel stock tanks. Today the line of manufactured products ranges from hog troughs to tanks 55 feet in diameter and ready-made steel buildings. At the beginning the employes could be counted on one hand. Now they number 600 and the company's products are distributed throughout the world to meet requirements of the oil industry, agriculture, cleaning and dyeing and a multitude of other commercial needs.

NEW WEIGHT INDICATOR IS CALLED FOOLPROOF

The Martin-Loomis Automatic Recording Weight Indicator, according to its manufacturers, the Martin-Loomis Corp., of Long Beach, Calif., is a foolproof instrument, accurate to a degree that makes it indispensable to the oil well driller. It discloses the weight of the tools, drill pipe, etc., pulling on the hook, such weight being indicated on both the gauge and the chart of the clockwork recording instrument. It embraces a different application of the diaphragm principle.

The device is attached to the dead line, and any weight on the hook causes the half-inch deflection in the line to straighten slightly, thus forcing the diaphragm inward, resulting in pressure being exerted on the enclosed water, and the water under pressure activates the mechanism of the pressure gauge and the recording instruments.

The sensitiveness of the instrument, the manufacturers say, is established to a fine degree, the slightest pull on the cable or release of weight being instantly indicated on both the gauge and recorder.

WELDING PRESS ADOPTS WHOLLY NEW PRINCIPLE

The new welding press announced by the Gibb Welding Machines Co. of Bay City, Mich., is a combination, the manufacturers say, of an automatic spot welder and a punch press. It differs from an automatic spot welder in both construction and in results of operation. A new principle in spot welding is employed in that where spots are normally made in one second the welding press makes spots in one hundredth part of a second. This is accomplished by means of an especially designed transformer and a precisely-timed automatic switch.

The transformer in its action has the characteristics of a condenser, discharging its current with lightning-like swiftness. The object of this new principle in spot welding, aside from speed of operation, is to make welds eliminating depressions in the surface, warpage and discoloration. The weld is made before the heat has an opportunity to soften the outer surfaces of the sheet. Welds can be made at the rate of 200 or more spots a minute.

The welding press has a smooth-toggle action which quickly brings the welding points lightly into contact with the work and a final forging pressure which can be without limit. The usual hammering of copper points is absent. This smoothness of action not only lengthens the life of the moving parts but preserves the welding points, eliminating constant redressing.

DEVELOPMENT OF THE MODERN SOOT BLOWER

Power plant engineers have long recognized the value of keeping boiler tubes free from soot, for soot is one of the best heat insulators known, says Robert June in INCO, published by the International Nickel Co. of New York.

A layer of soot prevents maximum transfer of heat from the fire to the boiler, and the unabsorbed heat passes out through the stack. The immediate decrease in flue gas temperature when soot is blown indicates unmistakably that the boiler efficiency has been increased. Thus the more often soot is blown—up to a certain economical limit—the lower will be the average daily flue gas temperature and the higher the boiler efficiency.

Although more efficient fuel-burning devices have decreased the amount of soot that collects on heating surfaces, soot should be blown as often as is economically warranted. Hand lancing is still employed in smaller power plants here and there, but this method far from thoroughly cleans the tubes. As a result of many tests, it has been found that the use of soot blowers saves 2 to 5 per cent more fuel than the best hand lancing does, 3 to 6 per cent more than ordinary hand lancing, and 4 to 8 per cent more than indifferent or occasional hand lancing.

Recent improvements in the design of soot blowers have greatly increased their efficiency, enabling economies to be made in the use of steam. Engineers have reduced consumption to a minimum by a carefully designed nozzle which imparts to the steam just sufficient velocity to penetrate through the bank of tubes and clean the furthermost tube.

The best method of reducing pressure to that required for most efficient blower operation is by means of a smple orifice plate. A fitting with a removable Monel Metal orifice plate having rounded entrance and exit edges is connected in the main steam supply to the blowers. Much study is being given at present to both the necessary operating pressure for different boiler conditions and the reduction of steam pressure to the desired point by orifice fittings of the proper size.

Reduction of steam pressure, however, eliminates only a small part of the great loss of steam. The real point of attack in steam economy is in complete utilization of steam during each blow, blowing through the cleaning are only as often as is necessary to clean the tubes thoroughly, and cleaning only as often during the day as is economically warranted. The last of these points can be determined only by study of the particular installation; it depends upon the grade of coal used, the efficiency of the fuel-burning apparatus, the rating at which the boiler is operated, the number of hours the boiler is operated, etc.

BUY BRITISH TIMKEN, LTD.

The Timken Roller Bearing Co. of Canton, Ohio, and M. B. U. Dewar of London, England, have together purchased from Vickers, Ltd., all of the capital stock of British Timken, Ltd. This purchase gives Timken complete control throughout the world of the manufacture and sale of Timken bearings.

Mr. Dewar, who now assumes active management of British Timken affairs, was until recently managing director of the Metropolitan Carriage, Waggon & Finance Co., Ltd., of Birmingham, England. Officials of British Timken, Ltd., are now at the Canton works making final arrangements for the establishment of factories in France and Germany.

CHAIN BELT CO. ENLARGES

The mortar and plaster mixer business of the Atlas Engineering Co. has been purchased by the Chain Belt Co. of Milwaukee, Wis. This is the second manufacturing business the company has bought within a year, the Stearns Conveyor Co., Cleveland, Ohio, manufacturers of belt conveyors, having been taken over 11 months ago.

TRACTOR WILL PERFORM MANY KINDS OF WORK

The accompanying picture shows outstanding features of the Linn tractor, with its front truck and regular truck steerage, as well as the powerful flexible track-laying device which takes the place of the ordinary truck rear wheels. The Linn tractor is said by the manufacturers to combine the advantages of the truck with those of the tractor. It carries "pay load" and at the same time has tremendous hauling capacity. It is equipped with a 100-horsepower six-cylinder engine.

This tractor is reported to be meeting with success in logging operations, road-building and road-maintenance work, snow removal, mining, general construction work, etc. The illustration shows the Linn equipped with a 4-cubic-yard water-level dump body and hoist.

The Linn Manufacturing Corp. recently was acquired by the Republic Motor Co., of Alma, Mich.

PROTECTION OF METAL SURFACES FROM RUST

In connection with the problem of protecting metal surfaces from rust, one frequently encountered in oil field operations, F. N. Vanderwalker, editor of the American Painter and Decorator, says:

"One of the chief requirements in finishing exterior metal surfaces is that of protecting them from destruction by rust. After cleaning thoroughly to remove all rust, these surfaces should receive a coat of Eagle red lead or blue lead and linseed oil. These are rust-inhibitive paints and will prevent the formation of rust when properly applied. Where colorful decorations are not wanted to fit the architecture, the finishing coats on exterior metal may be red lead or blue lead colored a dark shade like green or gray. When the ornamental feature is important, exterior surfaces should have the rust-inhibitive priming coat and then be treated the same as interior metal features, except that as a rule it is not important to have exterior surfaces finished in flat and, consequently, enough oil should be used in the colors to assure durability."

AMSCO BUYS FOUNDRY

The American Manganese Steel Co., Chicago Heights, Ill., has bought the iron foundry formely owned and operated by the American Brake Shoe & Foundry Co. in Burnside, on the south side of Chicago. This makes the seventh in the chain of seven foundries extending from Delaware to California, producing AMSCO manganese steel castings. The plant is being rearranged and operation under the new management will begin about January 1, 1928.

NEW CAPITAL INTRODUCED

The Belle City Manufacturing Co. of Racine, Wis., manufacturer of threshing outfits and crawler attachments for Fordson tractors, has introduced new capital into the company, enabling it to increase production and bring out several new lines of equipment. New officers elected are: H. A. Reed, president and general manager; W. J. Tostevin, vice president; G. A. Nelson, secretary-treasurer; H. A. Schultz, assistant secretary-treasurer. This concern was established in 1882.

"BALANCED LAND" PUMPS

One of the exclusive features said by the Tuthill Pump Co. to be possessed by its pumps is the patented "balanced land" construction. These balanced lands, the manufacturers say, act as relief valves, allowing the liquid to by-pass within the pump should the discharge line become clogged. The pumps are positive displacement, of the internal-gear type.

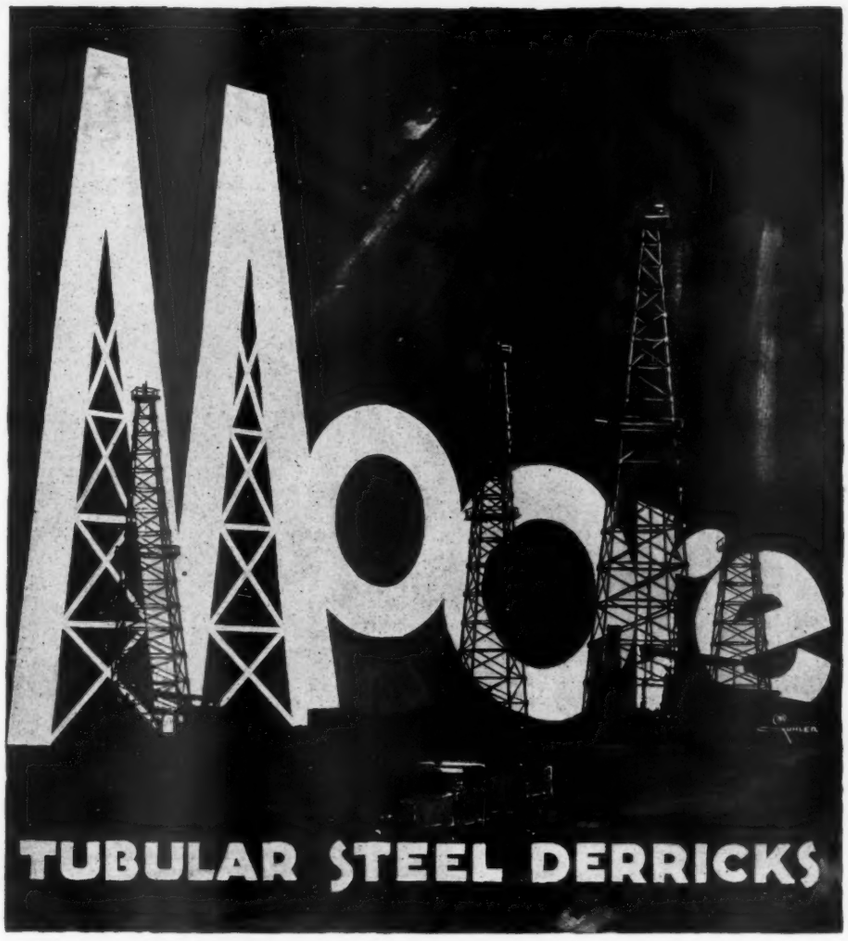
BULLETINS AND CATALOGS

Sullivan drills have speed, stamina and adaptability, according to a folder sent out by the Sullivan Machinery Co. of Chicago. Sullivan diamond drills have been standard prospecting instruments for half a century, the folder says.

"Light on Your Rust Problems" is the title of a folder published by the American Rolling Mill Co. of Middletown, Ohio. It tells what rust is and how to protect tanks and piping against it.

The anniversary number of the Du Pont Magazine tells of "125 Years of Usefulness, 1802-1927," rounded out by E. I. Du Pont de Nemours & Co., of Wilmington, Del.

A new bulletin issued by the Leader Iron Works, of Decatur, Ill., gives construction details of its Model 500 truck tanks. Illustrations show their use by oil companies, mounted on various makes of trucks.



A derrick to be truly economical must deliver long years of continuous service—must be used again and again, in one location after another—must have light weight with great strength—must be simple to erect and to dismantle—must be easy to transport from place to place. Here the Moore Tubular Steel Derrick has no equal.

World Wide Service
for Twenty Years

LEE C. MOORE & CO., *Inc.* PITTSBURGH · TULSA

Established 1907

DALLAS, TEXAS HOUSTON, TEXAS WICHITA FALLS, TEXAS BORGER, TEXAS PARKERSBURG, W. VA.
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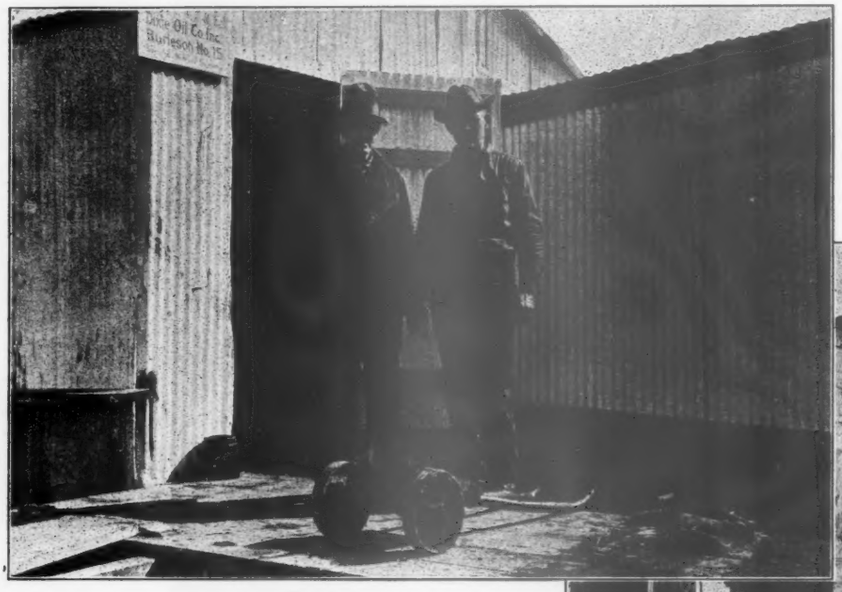
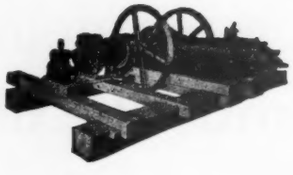
FRANKLIN VALVELESS

"When we buy more engines—

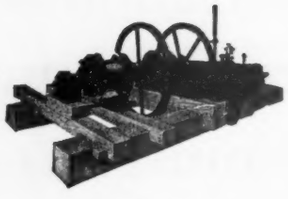


R. D. King, Driller, and J. D. Coombs, Tool Dresser of Gibson Brothers' crew around the Dixie Oil Company's lease at McCamey, Texas. At the right we see Mr. H. H. Gibson, himself.



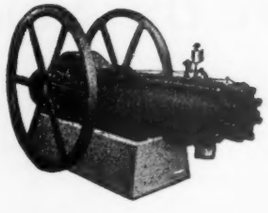
FRANKLIN OIL DRILLING ENGINE

The Franklin is a single-cylinder, three-port, two-cycle VALVELESS engine. This is Type AO for Mid-Continent or Western Cable Tool Drilling. Price $3700.00. For Eastern Service $2600.00 and $3350.00. Prices F.O.B. Factory. Complete with self-oiling, reversible drilling clutch, circulating pump and fuel tank.



FRANKLIN GAS DRILLING ENGINE

Where gas is available this engine—just as efficient and economical—has an added advantage—*Interchangeability*. The prices for Western Service are $1725.00 and $2150.00. For Eastern Service $1450.00 and $1725.00. Prices F.O.B. Factory. These engines can show you a power, speed and flexibility almost unbelievable.



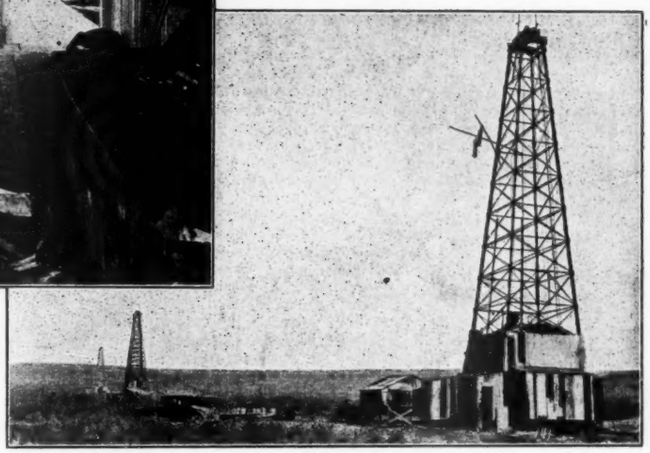
FRANKLIN GAS PUMPING ENGINE

Similar in construction to the drilling engine and interchangeable on the same block with it. You can either leave your Drilling Engine on the job for pumping or replace it with one of these lesser horse power Franklins without changing a single bolt.

OIL WELL SUP
Branches in

OIL AND GAS ENGINES

they'll be Franklin Valveless!"



No coal or water to haul, no fires to tend, no boilers to leak on this Franklin Valveless installation. The four rigs at the right are all equipped with Franklins.

The Gibson Brothers know a good power plant when they see it. They've got four Franklin Valveless Drilling Engines now and lots of experience—a combination that *means something* when you're in the contracting business.

"The most satisfactory power-plants we have ever worked with" is what the Gibsons think of Franklin Valveless; and that seems to be the consensus of opinion of all contractors who have standardized on these fast, dependable drillers and pumpers. While Franklin Valveless Engines are noted for economy of fuel, water and oil, don't overlook the advantages of easy transportation (one truck does it) and the fact that repairs are practically unknown.

Switch over to Franklins on your next well—you'll find it's the best move you ever made.

FRANKLIN VALVELESS ENGINE COMPANY
Franklin, Penn.

ed By
PLY COMPANY
All Oil Fields

Natural Gas Developments

Leasing System Said to Cause Waste

Necessity of Operators' Offsetting Producing Wells Results in Overdevelopment. Co-operation of Companies Needed

By William F. Chisholm
Director of Minerals Division, Louisiana Conservation Commission

Briefly, all conservation law depends on man's right to own and enjoy that which is his. Natural gas is the property of the state until it is reduced to possession. As it exists in the natural reservoir it belongs not to the owner of surface rights, nor the owner of mineral rights, but to the state itself. The state, therefore, has unquestionably the power to regulate the manner in which gas may be withdrawn from the natural reservoir. The courts have also decided that the state under its police power may regulate transportation, storage and utilization of natural gas, particularly with the purpose of prevention of waste. State conservation bodies are merely the agents of the state in the matter of waste prevention.

A wasteful removal of natural gas from its natural reservoir is an offense against the property rights of the state, whether that waste occurs in the drilling for gas or oil, through improper production methods, production in advance of market demand, or in careless drilling or abandonment of wells. Waste in transportation or in utilization is equally an offense against the interests of the state. Natural gas cannot be artificially stored. The only safe storage for the gas is in its natural reservoir. To remove from that reservoir more gas than can be marketed at a reasonable price is an economic crime. It can be laid down as the first axiomatic principle of gas conservation that natural gas should and must be left in the ground until its use is demanded in the market.

Overdevelopment Means Waste

Overdevelopment means waste; close spacing means waste; reckless drilling for oil through gas horizons means waste; failure to properly case and cement wells in gas areas means waste; blundering into gas sands without having necessary control equipment on the location and ready for use means waste; overpulling means waste; leaky fittings, second hand casing, and careless drilling crews mean waste. Flambeaux, pop-valves, leaky lines and other careless transportation items mean waste. Burning of gas into products in processes that dissipate the greater part of the gas mean waste, unless the value of the resulting product is great enough to overcome the economic demand for domestic and industrial fuel.

All these items of waste have been legislated against to some extent with the exception of the first item, overdevelopment, or rather, premature development. Premature development is the cardinal sin of the gas industry. It is the first and most prolific cause of gas waste. Premature development is the rapid building up of a large open flow capacity before a market has been developed in proportion. The states can legislate against untested pipe, against leaky joints, against flambeaux, and against poor cementing, but they seem to be powerless when confronted with the problem of premature development.

State legislatures have already accomplished a large share of the work. Laws were first passed to shut out surface water. Laws have been passed to curtail underground and surface waste, to prevent premature salt water encroachment, to insure safe drilling and safe abandonment. Until our faulty and wasteful leasing system is corrected, state legislatures can do no more than attend to details in the campaign against waste.

Drilling Campaigns

Gas is discovered. Immediately the lesser demands drilling. Immediately the royalty owner stretches out his itching palm. The farmer will put his eggs and his butter in cold storage until the market is ready. He calls on the Government to build elevators and warehouses for his grain. He runs to the banks for cash to carry him over a poor cotton market. He favors the erection of huge dams to hold back flood waters until he can use them to advantage; and he is undoubtedly right. He calls on the gas producer to produce now. He cannot see the advantage of storage for gas.

As in the case of oil lands, the leasers of gas lands demand that the vicious circle of overproduction be the path of the producer. Each gas well must have its offset, each offset its offset until the field is defined, regardless of market conditions. Even in those rare cases where lessers and operators can agree on orderly production, the vast army of royalty holders clamors for cash: "Give me mine—and give it now."

The great Seminole Field threatens to engulf the oil industry in a flood of unmarketable crude. The people of Oklahoma are in sympathy with the operators in their efforts to restrict production and stabilize the market, but a small royalty holder from Nebraska, with a pitifully small interest in the development of Seminole, invokes the federal Department of Justice to force the State of Oklahoma and the operators into throwing overboard all restrictive measures as being combinations in restraint of trade. To fill his individual pocket, one small royalty holder threatens to break down the levee of agreements, now holding back the Seminole flood, threatens the stability of the whole petroleum industry and the livelihood of the millions dependent on its orderly progress.

Under these conditions, conditions for which the much abused producer are not alone to blame; conditions, the blame for which rests equally on the shoulders of the producer, the royalty trader, the lesser, and the public; conditions for which our established system of leasing is largely responsible; under these conditions it is not to be marveled at that the history of almost every gas field that has come into being may be summed up under one typical outline. Discovery, overtrading, overdevelopment, surplus open flow, rapid and wasteful depletion of reserves, and death by drowning.

Educate the Public

What is the remedy?

More legislation?

The legislatures are largely creatures of public opinion. Until you educate your public, your problem is still on your hands. Gas selling organizations in the retail trade have seen the light. Their public relations departments are working on the problem on the distributing end of the line. They are engaged in great educational campaigns to convince a reluctant public that it should pay a fair price for natural gas. But the gas industry is neglecting entirely the essential education of the man who sits with outstretched hand astride the gathering line.

In fact, with few exceptions, the lesson of gas conservation and gas protection is not even taught to gas company employes. Field men in the gas industry are frequently the direct cause of gas waste. The legislatures may legislate till doomsday, and the conservation commissions may regulate to the limit of the law, but they will have only nibbled at the edge. The heart of the problem of wasteful production is untouched until the gas industry convinces its financial backers, its attorneys, its field men, and its lessers that the time has arrived to forsake Zoroaster and the worship of eternal fire. The time has arrived to seek our instruction in the history of wasted fields. The time has come to realize that gas, like any other commodity, must be stored for market and that the only economic storage, the only storage, is reservoir provided by nature.

In Louisiana we believe that our state laws designed to curb gas waste are the most progressive and equable of all gas producing states. In most details they resemble closely the usual state laws, but in the basis of control of withdrawal they represent a step in advance. Apparently the responsible operators agree with us in this opinion of our laws, for we have their ready and willing co-operation with few exceptions.

State Conservation Laws

State conservation laws should be so written as to protect not only the public but the responsible operator as well. The responsible operator who works with the state should be protected from his careless brother, the reckless operator, whether that recklessness manifests itself in drilling or in production methods. In order that this protection law be given

(Continued on Page 101)

*Before Southwest Division, Natural Gas Department, American Gas Association, Houston, Tex.

BUILDING 60-MILE LINE FROM MONROE

SHREVEPORT, La., Nov. 7. — Natural Gas Products Co., of Monroe, La., and H. C. Couch of Pine Bluff, Ark., and associates have begun construction of 60 miles of gas pipe line from the Monroe fields to Camden and have three tong gangs in the field with the same number of gangs ditching and backfilling. Completion of the project is expected about December 15. The line will be a 16-inch out of the Monroe district, then 14-inch and 12-inch into Camden. It is understood that the line will eventually be extended to Pine Bluff, Ark.

Meanwhile Natural Gas & Fuel Corp., which leased that part of the Crusader Pipe Line Co.'s 10-inch line from the Richland and Monroe gas fields to El Dorado, has gone over the line and put it in shape for a gas carrier. It has begun shipping fuel from its Monroe Field producing properties to El Dorado and Camden, supplying the $5,000,000 pulp mill of the Southern International Pulp & Paper Co. at the latter place, and consumers in El Dorado, Smackover and other communities and consumers in the south Arkansas oil fields. The line is handling 20,000,000 cubic feet per day at present.

PUBLIC UTILITIES CORP. GETS TIME EXTENSION

SHREVEPORT, La., Nov. 7. — The Public Utilities Corp., of Arkansas, subsidiary of the Natural Gas & Fuel Corp., of the Cities Service group, has been granted a six months' extension for completion of natural gas distributing systems in Conway, Russellville and Atkins, Ark., three of the five towns along the Arkansas River between Clarksville and Morrillton, which it will supply with fuel from the Johnson County gas field being developed by the parent organizations.

Franchises were granted the company by these five towns last winter with November 1 fixed as the date for completion. Meanwhile construction of 75 miles of 10-inch pipe line from Empire Gas & Fuel Co. and Natural Gas & Fuel Corp. wells near Clarksville to Morrillton is under way and installation of the distributing system in Conway has begun. The pipe line will handle approximately 30 000,000 feet of gas per day.

Natural Gas & Fuel Corp. made locations early this year for a wildcat in the southeast corner of Franklin County, southwest of the Clarksville Field, and last week began drilling another in Pope County. No. 1 Wharton, 460 feet south and 660 feet west of the NE cor., Section 7-8-21, southeast of the proven Clarksville Field.

Two distinct gas structures have been found in the Clarksville area, practically all of which have been leased by Empire Gas & Fuel Co. and the Natural Gas & Fuel Corp.

LARGER LABORATORY FOR GAS ASSOCIATION

Announcement has been made by the American Gas Association of plans to construct a new and larger gas testing laboratory at Cleveland, Ohio.

The present laboratory, established by the gas industry, in co-operation with various United States departments, has met with great success in improving efficiency of gas appliances.

The laboratory is testing four major types of domestic appliances and, in addition, is doing much research work on mixed gases. Types of appliances which are laboratory approved go on the market bearing a blue seal which attests to their efficiency and economy.

R. W. Gallagher, president of the East Ohio Gas Co. and chairman of the laboratory committee, declares the work of the laboratory is of great benefit. "It is satisfying the public demand for gas and for more and better ways of using it," he says, pointing out that the laboratory is the result of co-operation between gas companies, manufacturers of appliances and gas users themselves.

R. M. Conner, director of the laboratory, reports that 10 manufacturers of gas heaters and 33 manufacturers of gas ranges are making only appliances approved by the laboratory.

OKLAHOMA DEVELOPMENT

Three more Oklahoma towns have recently granted natural gas franchises to the Community Natural Gas Co., Marietta, Lexington and Wayne. The company is completing new gas distribution systems in several other Oklahoma cities and towns.

The Community Natural Gas Co. is extending its gas mains at Wynnewood. A new regulator station is also being installed.

The Southwestern Light & Power Co. has constructed a duplicate 6-inch gas line from its distribution system at Chickasha to its main line connecting with the Chickasha gas field.

NEW LINE FOR M'ALESTER

M'ALESTER, Okla., Nov. 5. — Construction of an 8-inch gas line from Blocker to Gainescreek, to cost about $60,000 and replacing the old 4 and 6-inch line that has served McAlester for the past several years has been started by the Southwest Power Co. with E. V. Zull, manager of the gas division, in charge. When the new line is completed, McAlester will be connected with the gas fields all the way with an 8-inch line and danger of gas shortage will have been practically eliminated.

4 1/2 Miles per Day

Savings *by* Smith

The Smith patented method of electric welding of the longitudinal seam makes possible the production of pipe from 16 to 22 inches in diameter and 30 feet in length of *uniform* length, diameters, and wall thicknesses.

Fewer Joints

Smithsteel Pipe is made plain end and plain end beveled for any field joint. The 30-foot lengths of Smithsteel Pipe will require only 175 joints to the mile as compared with 263 needed for the usual 20-foot lengths of pipe.

Joining Simpler

Smithsteel Pipe is accurate in both outside and inside diameters. The wall thicknesses are uniform. The joints will butt up evenly at all points making alignment and either welding or coupling simpler and surer. Joining will therefore be quicker and easier.

The Use of Less Metal

Due to the Smith method of fabricating, and the high quality steel, less metal can be used in the body of the pipe.

As Specified

4½ miles—23,760 feet—of 16 to 22 inch Smithsteel Gas Line Pipe is coming out of the A. O. Smith Pipe Mill per Day, as shown in the Production Photograph above.

Every foot, is accurate in outside and inside diameters, as specified. Every foot, is uniform in wall thickness, as specified. Every length is exactly 30 feet.

Smithsteel Gas Line Pipe saves on transportation costs, and joining in the field, as explained in the "Savings by Smith" column.

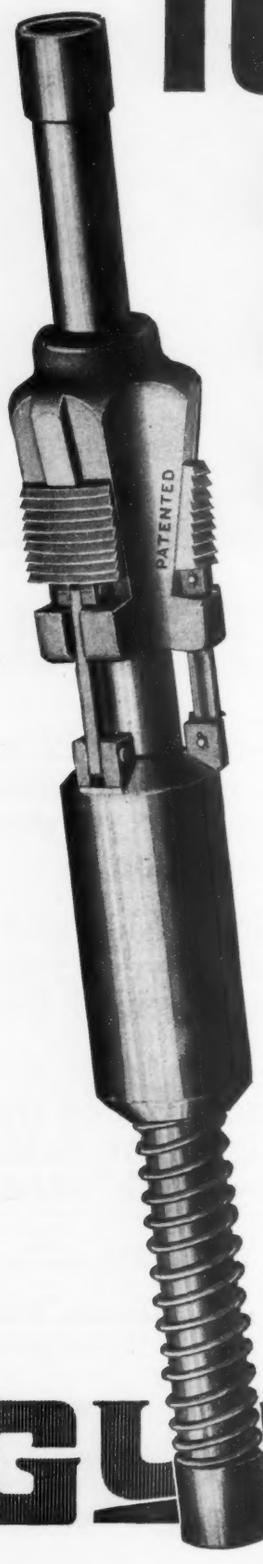
For complete information address:

A. O. SMITH CORPORATION :: *Milwaukee, Wisconsin*
Oil Field Products Division Los Angeles

SMITHSTEEL GAS LINE PIPE

TUBING *is* SAFE

ONLY when your Catcher will do these 3 things!



1 IT MUST OPERATE WITHIN 3 INCHES. If the tubing drops farther before catcher functions, it is subject to damage, or may burst the casing. *Every* GUIBERSON Catcher is tested at the factory, and must operate *within 3 inches.*

2 IT MUST OPERATE EITHER IN OR OUT OF FLUID—WITH NO WEIGHT ABOVE. A catcher which requires fluid or overhead weight to help it operate protects tubing only under certain conditions. The GUIBERSON Catcher is tested in an *empty casing,* with *no weight above.*

3 IT MUST OVERCOME RESISTANCE OF MUD AND PARAFFIN. If a catcher is affected by sand or wax, it can protect the tubing for a short time only. The GUIBERSON Catcher is sufficiently heavy in construction to overcome such resistance and protects the tubing *for the life of the well.*

A *strong spring, adequately heavy striker weight,* and *dove-tail tracks for slips,* are the outstanding and exclusive features of the GUIBERSON Catcher which insure operation within 2 to 4 inches, under all conditions. *Fully patented.*

"Better Be Safe Than Sorry"

THE GUIBERSON CORPORATION
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UNITED KINGDOM OUR LARGEST CUSTOMER FOR REFINED OILS

An analysis of figures recently issued by the Bureau of Foreign and Domestic Commerce, covering the exports and imports of petroleum and its products for July, again shows the United Kingdom to be the best customer of refineries in the United States and Mexico as furnishing the most imports. But with Mexican crude oil production decreasing rapidly and Venezuela systematically developing its resources, Mexico's position is threatened. Already Venezuela ranks second and during July exported one-third as much crude to this country as Mexico.

Gasoline exports for July totaled more than 3,000,000 bbls., one-third of which went to the United Kingdom. Approximately 83 per cent of the total was shipped in bulk, the balance being shipped in cases. The total value of $14,170,098 represents an important item in the total of all materials exported for the month by the United States, but compared to the amount of money spent by the domestic motorists for gasoline, these exports are relatively small. In fact, the value of the exported gasoline is less than half the amount paid as gasoline taxes alone in the United States for the same period.

Kerosene exports amounted to 1,359,000 bbls., nearly one-half the volume of gasoline shipped. The United Kingdom, again, was the principal purchaser, with China ranking a close second.

Gas oil and fuel oil exports approached the $4,000,000 mark in value during July, Japan, Panama and the United Kingdom leading. Lubricating oils valued at more than $8,000,000 were exported in July, the United Kingdom, Germany and France take a large portion of the total. The pale oils and red oils led in value as a class, the cylinder stocks ranking as a close second, with black oils of relatively little importance.

Grease exports totaled more than 7,000,000 pounds, with the United Kingdom standing as the greatest importer of this product from the United States. Wax exports exceeded 250,000,000 pounds and their value exceeded $1,000,000.

The tables included in this article show the detailed exports to the 10 principal countries for each product together with the volume and value exported to each.

Major Countries Importing Petroleum Products From United States in July

Crude Oil

	Barrels
Canada	894,292
Japan	137,655
Cuba	53,171
Mexico	3,776
Kwangtung	119
Total	1,089,013
Value	$1,685,196

Gasoline, Naphtha and Other Light Products

	Bulk Barrels	Containers Barrels
United Kingdom	1,040,214	1
France	435,192	36
Canada	390,548	2,064
Italy	153,156	.....
Germany	139,799	.....
Denmark and Faroe Is.	135,864	.....
Argentine	126,336	32,764
Sweden	96,755	.....
Panama	89,178	298
All others	130,752	343,604
Total	2,737,794	378,767
Value	$10,964,182	$3,205,916

Kerosene

	Bulk Barrels	Containers Barrels
United Kingdom	192,445	10
China	133,154	27,567
British India	131,981	7,150
France	98,749	233
Sweden	94,534	8
Japan	66,987	22,572
Germany	62,900	12
Netherlands	62,670	.....
Denmark and Faroe Is.	20,029	10
All others	94,356	344,358
Total	957,795	401,920
Value	$2,720,234	$2,636,840

Gas Oil and Fuel Oil

	Barrels
Japan	589,056
Panama	554,575
United Kingdom	540,558
Argentine	342,433
Canada	216,742
Cuba	176,395
Denmark and Faroe Is.	149,896
China	145,819
Uruguay	122,356
Austria	113,447
All others	475,484
Total	3,426,761
Value	$3,822,214

Lubricating Oils

	Pale and Red Barrels	Black Barrels	Cylinder Stock Barrels
United Kingdom	152,834	15,240	85,633
Germany	115,602	17,365	20,768
France	94,568	5,034	35,049
Denmark and Faroe Is.	30,058	10,991	1,614
Canada	26,329	562	8,955
Italy	21,962	6	20,899
Spain	21,530	55	8,196
British India	17,040	5,327	3,062
Austria	16,672	583	9,109
Netherlands	12,664	159	1,678
All others			2,549,930
Total	612,286	77,877	270,047
Value	$4,568,477	$388,060	$3,321,365

Grease

	Pounds
United Kingdom	1,130,832
Germany	583,449
Canada	573,712
Argentine	509,296
Australia	468,579
Belgium	339,548
British South Africa	297,638
Spain	286,088
France	286,609
British India	232,331
All others	2,549,550
Total	7,257,612
Value	$ 397,234

Paraffin Wax

	Unrefined Pounds	Refined Pounds
United Kingdom	2,255,978	5,677,433
Italy	335,461	2,477,507
Mexico	49,993	1,415,617
Netherlands	551,913	1,265,897
Chile	17,029	1,161,093
Germany	424,620	1,102,093
Spain	33,069	996,931
Belgium	134,374	752,281
Peru	.....	604,962
Columbia	35,904	593,724
All others	2,030,622	4,653,912
Total	5,868,963	20,101,440
Value	$213,871	$823,621

PHILLIPS PETROLEUM IN PERU

Phillips Petroleum Co. has a party of geologists exploring a government exploratory concession in Peru. The property covers a large area and the company has until next spring to conduct exploratory work before it has to decide if any part is to be retained for development. The land covers a government reserve running along the coast to the south of producing properties developed years ago by International Petroleum. If portions of the property are recommended by the examining geologists, Phillips will then decide on development work, but meanwhile expenditures are limited to geologizing.

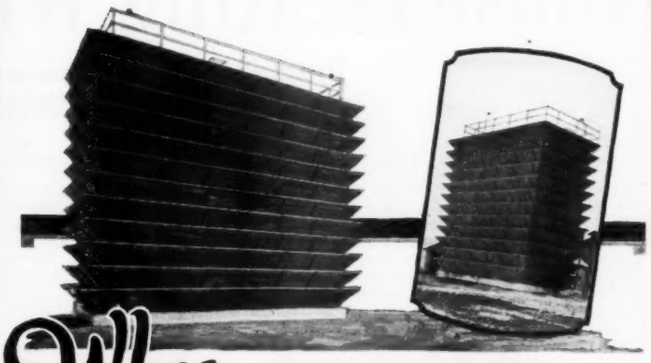
IMPORTS OF PETROLEUM AND PETROLEUM PRODUCTS INTO THE UNITED STATES BY COUNTRIES

Countries—	Crude Petroleum Bbls.*	Crude Petroleum Dollars	Refined Products: Topped, Includ'g Fuel Oil Bbls.*	Topped, Includ'g Fuel Oil Dollars	Tops and Other Unfinished Distillates Bbls.*	Tops and Other Unfinished Distillates Dollars	Gasoline, Naphtha and Other Finished Light Products Bbls.*	Gasoline, Naphtha and Other Finished Light Products Dollars
Canada	5,881	13,585	23,877	34,759	3,658	14,436	649	3,396
Mexico	2,825,115	3,301,410	629,000	673,481	.....	.....	57,005	225,463
Jamaica	65,000	63,182	.....	.....	.....	.....	.....	.....
Trinidad and Tobago	29,575	39,926	.....	.....	.....	.....	.....	.....
Dutch West Indies	385,767	527,536	196,208	362,055	.....	.....	132,150	645,000
Virgin Islands of U.S.	.....	.....	18	64	.....	.....	.....	.....
Colombia	542,000	$62,683	.....	.....	.....	.....	.....	.....
Peru	47,595	66,634	.....	.....	.....	.....	.....	.....
Venezuela	922,404	1,120,541	.....	.....	.....	.....	.....	.....

*Barrels of 42 gallons.

Countries—	Illuminating Oil (Kerosene) Bbls.*	Illuminating Oil (Kerosene) Dollars	Lubricating Oils, Including Paraffin Oil Bbls.*	Lubricating Oils, Including Paraffin Oil Dollars	Paraffin and Paraffin Wax Pounds	Paraffin and Paraffin Wax Dollars
Belgium	...	...	15	321	277,558	19,968
Germany	...	...	151	2,214	.....	.....
Latvia	...	...	...	....	7,136	574
United Kingdom	...	...	12	156	33,600	2,226
Canada	...	...	25	267	6,709	118
British India	1	13	...	....	.....	.....
Other Dutch East Indies	...	...	...	....	2,464,000	140,229

*Barrels of 42 gallons.



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FLUOR REDWOOD COOLING TOWERS

House Heating With Gas in Southwest

Practical Aspects Discussed in Paper Presented Before Southwest Division, Natural Gas Department, A. G. A.

By J. W. Duvall*
Oklahoma Gas & Electric Co.

In the Southwest, natural gas has been in the home for heating purposes since its introduction. Since the great majority of homes have no central heating plants, its consumption has been in space heaters. By far the greater number of space heaters in use are not ventilated, due to the unsightliness of the flue pipe connections and therefore the products of combustion are dumped into the home. Certainly this speaks well for the cleanliness of natural gas, for the burning of solid and liquid fuels in the home in unventilated equipment would be disastrous. This wonderful asset, cleanliness, has been responsible for most of the ills that have beset this ideal fuel for house heating.

This method of heating is considered the most economical and does give the lowest heating cost, when only the cost of the fuel is considered. However, when due consideration is given to the damage done by the excessive water vapor to the furnishings of the home and the interior finish, and also the health of the occupants, it will be found that this method of heating is rather expensive as well as unhealthful and also presenting a hazard.

In the Southwest gas has also been used to a considerable extent in central heating plants designed for coal. This inefficient use of gas in such heating plants was brought about by the low price of the gas when first introduced. In fact, the price of gas today in many localities is such that the public can still afford to use it in such equipment.

In the central heating plants designed for coal, which have been converted to gas, the average efficiency of utilization is under 30 per cent. Nevertheless, it is surprising to know how economically many homes are heated which house inefficient plants. This economy is accomplished by using space heaters for the greater part of the heating requirements, and using the central heating plant only during the colder months of the heating season. Such a method of operation, while far from satisfactory, presents a stumbling block for gas-fired equipment when the cost of operation only is considered.

Improved Methods of Heating Small Homes

The greater field for the improvement of heating conditions is in the small homes with no central heating plants. While it is true that the gas is consumed very efficiently in unventilated space heaters, it is also true that the results obtained are far from satisfactory.

The small homeowner need not suffer today for the lack of satisfactory heating equipment, for never in the history of the gas appliance business has there been such a wealth of well-designed and efficient heating equipment. Each type of equipment is particularly adapted for certain heating requirements and if properly selected will give very satisfactory service.

As an example of the possible arrangement of heating equipment necessary for the smaller home, we shall consider a five-room house which ordinarily would be heated with some four unventilated space heaters distributed throughout the house. The house we will assume, has a heat loss of 80,000 B.t.u.'s per hour and requires 100 cubic feet of gas per hour to heat it on the coldest day of the year. This house has a fire place in the living room and for the fireplace we will select a well-designed, efficient radiant type of heater. By placing this heater in the fireplace, which we will assume has an opening to the chimney, we have ventilated the heater even though we have made no flue pipe connection. From such a heater we may expect to receive 80 per cent of the heat in the gas as radiant heat into the room. In the dining room of this house there is a flue pipe opening so we will place a convection type of heater in this room. This heater should have an output of about 40,000 B.t.u.'s and consume about 50 cubic feet of gas per hour at an efficiency of 80 per cent. This heater being more or less centrally located will take care of the heating requirements of the house for the greater part of the heating season. We will assume this house has a gas range in the kitchen and this range has an uninsulated oven, which oven will be used for heating purposes during the colder days of the year. In the bathroom we will place a small heater of the convection type with the flame well protected. This heater will have to be used unventilated as there is no chimney in the immediate vicinity. With such an arrangement of heating equipment, we are able to consume 110 cubic feet per hour at an average efficiency of 80 per cent, which is sufficient to take care of the maximum heat requirements of the house, and all the equipment is ventilated with the exception of the bathroom heater, which consumes such a small amount of gas that it cannot possibly cause the walls and windows to sweat.

Another possible arrangement of heating equipment in this house would be to replace the convection heater in the dining room with a couple of floor furnaces of equivalent heating capacity, one to be located in the dining room and the other one at some other appropriate place and both to be connected to the chimney either below or above the floor line.

Central heating plants are available for the smaller homes even though these homes have no basement facilities. Forced circulation warm air plants can be readily installed by placing the furnace and blower in a small room added to the house. Hot water heating plants can also be installed with the gas boiler placed in one room of the house. However, the cost of such heating plants is usually more than the value of such property would warrant.

Gas-Fired Equipment vs. Converted Coal Equipment

Upon entering the house heating field it becomes necessary for the utility to adopt more or less definite policies upon which to base its house heating program. Existing conditions influence these policies materially, but in general it may be stated that where the highest efficiency of utilization of the gas is desired, and therefore the lowest heating cost, and a satisfied customer for the lifetime of natural gas, and a customer educated on house heating with gas and prepared to burn manufactured gas, the answer is the sale and installation of equipment designed for gas. However, if the house heating program calls for increased revenue in a relatively short period of time and therefore without due consideration of the above-mentioned points, the answer is the conversion of equipment designed for coal. Experience has proven that it becomes necessary to adopt a more or less fixed policy, otherwise nine conversion jobs will be sold to one gas-fired job, due, of course, to the difference in the cost of installation.

A policy of gas-fired equipment does not necessarily mean that no conversion work will be done. It should mean that gas-fired equipment will be advocated. Conditions arise sometimes where gas-fired equipment cannot be sold and in order to lose the load to some other fuel it becomes necessary to talk conversion with gas.

Converted Coal Equipment

A great deal of the converted coal equipment in use today is very inefficient, due to the faulty installation of gas burners which are not particularly adapted for the job. Nevertheless, this much can be said in favor of conversion jobs, that equipment designed for coal, when converted to gas with the proper type of burner, correctly installed, can be made as efficient with gas as any other kind of fuel. It is the general opinion that coal equipment converted to oil can be made far more efficient than coal equipment converted to gas. This erroneous opinion is no doubt due to the fact that the oil burner industry has done a much better job of converting coal equipment than the gas industry.

There are today on the market many types of gas burners for converting coal equipment. If properly selected and correctly installed, the results will be quite satisfactory. In selecting this burner equipment, keep in mind that coal equipment is properly designed for coal and to convert it to gas with the highest possible efficiency, we must quite closely duplicate coal fire conditions. We all know that most of the heat from coal is transmitted by radiant energy to the heating surface and very little heat is obtained from the products of combustion. Therefore, in selecting gas burners choose the radiant type of burner or the luminous flame burner, if you wish to get results.

In conversion work it hardly seems advisable to make any major changes in the heating system, for the cost of such changes, plus the cost of the conversion, approximates the cost of gas-fire equipment and in the end you have only a converted coal job. Neither does it seem advisable to determine the heat losses of the house and estimate the heating bill, due to the fact that the efficiency of conversion jobs vary considerably.

In conversion work every means should be utilized to obtain the highest over all efficiency. To accomplish this end, no conversion job should be sold without a gas pressure regulator and a high-class heat regulator. These two last pieces of equipment have a great deal to do with the satisfactory operation of the job. It is my opinion that a conversion job without a pressure regulator and a heat regulator is better left unsold.

Most of the conversion work in the past has been handled through the plumbing trade. The trade's idea of a conversion job was the placing of a cheap gas burner in the fire door of the coal equipment in such a manner that it could be readily removed for the burning of coal. There is no reason why this phase of the house heating program should not be handled in its entirety by the utility, for certainly the utility understands the application of gas to coal equipment to a far greater extent than the heating trade.

Utilities Position in Heating Industry

The gas utilities entrance into the house heating field has been accompanied by many trials and tribulations. It was realized from the start that the good will and co-operation of the architects, contractors and the heating trade were necessary in order to accomplish the most in this new line of endeavor. In order to gain this good will and co-operation, it becomes necessary to sell them on the advantages of gas over all other fuels for house heating. This can best be accomplished by personal contact, telling them the story of house heating with gas, over and over again.

The architects, contractors and the heating trade are in a position to be of valuable assistance to the utility for it is upon their recommendation that the owner chooses the type of heating plant to be installed and the kind of fuel to be used. Then again, the heating trade knows the heating business as it applies to other fuels and with the knowledge of the utility as to the utilization of gas, the two can solve any and all heating problems pertaining to the use of gas.

The sale and installation of the proper heating equipment for homes without basements and the sale and installation of the proper equipment for the conversion of coal boilers and furnaces can be very nicely handled by the utility. However, the gas fired central heating plant presents a far more difficult problem in that the gas company is not in a position to handle the greater part of the necessary equipment, and therefore the extent of this work is a matter of company policy. The policy best adapted for carrying out the house heating program depends somewhat upon local conditions. Many utilities find it advisable to handle this work entirely through the heating trade, the utility acting in an advisory capacity only. Other utilities find it necessary to organize a house heating department and handle a portion of the business direct with the customer. Many utilities have found this latter policy produced very satisfactory results during the early stages of house heating.

No particular complications arise when gas equipment is sold for new heating installations, for it is realized that if the architect specifies gas fired equipment and the owner approves of it, the specifications will call for it and the heating trade will bid on it. Under these conditions, the utility merely specifies the type and size of gas equipment and quotes the heating trade a price on this equipment and accessories, including the heat regulator.

Many times complications do arise in selling gas equipment through the trade for existing heating plants. These complications are due to the fact that it requires considerable sales ability on the part of the utility to sell this equipment, which is priced out by the trade. Therefore, there are two organizations entering into the transaction, neither one of which can talk intelligently on the other one's part of the transaction. Also another complication which enters into the transaction is the customer's desire for the payment plan, which the heating trade in general will not honor. Therefore, in many instances the only way that gas equipment can be sold for existing heating plants is to handle the transaction direct with the owner and allow the privilege of the utilities payment plan.

Continuity of Gas Supply

Always uppermost in the public mind, relative to the use of gas designed equipment for house heating, is the question of gas supply. It seems to be the general opinion that when natural gas is gone, gas designed heating plants will be no longer useful. Of course, such would be the case if the natural gas industry was not looking farther into the future than the life of natural gas. It is reasonable to expect that no community of 10,000 or more inhabitants will be without manufactured gas when natural gas passes. Many smaller towns today have manufactured gas in which some progress in house heating with gas has been made.

In this section of the country, where millions of dollars have been invested in gas transmission lines, it is reasonable to expect that these lines will be used for the transmission of manufactured gas, when the proper time arrives. The gas will be manufactured at points along these

(Continued on Page 97)

*Before Southwest division, Natural Gas Department, American Gas Association, Houston, Tex.

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Extract from the speech of Hon. Hubert Work Secretary of the Interior and Chairman of the Federal Oil Conservation Board, before the Mineral Law Section, American Bar Association, at Buffalo, August 30, 1927

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Bureau of Mines Statistics for Month of September 1927

By G. R. Hopkins

The production of crude petroleum in the United States in September, 1927, as reported to the Bureau of Mines, Department of Commerce, by companies which operate gathering lines, amounted to 75,081,000 bbls., a daily average of 2,503,000 bbls. This represents a decline of 13,000 bbls. from the daily average of the previous month.

The decrease in national output was again due mainly to developments in the Seminole district, where a number of good completions in the Little River Pool were unable to counterbalance the decline of the older pools, notably Seminole City and Bowlegs. Both of the other large producing States, California and Texas, recorded increases in daily output in September. Practically all of the increase in production in Texas was credited to the west Texas fields, which showed an increase in daily average production of approximately 20,000 bbls. over August, 1927.

Stocks of crude petroleum east of California continued their upward trend by virtue of an increase of slightly over 6,000,000 bbls. during the month. This increase, while large, was somewhat below the average of the past few months, undoubtedly a result of the production decline at Seminole. Stocks of light crude in California again registered a slight decline; heavy stocks, a slight increase.

Refined Products

Runs to stills of domestic and foreign crude petroleum amounted to 68,789,000 bbls., a daily average of 2,293,000 bbls. This represents another slight decline in daily average runs to stills.

Daily average gasoline production established a new high mark of 924,000 bbls., an increase of 20,000 bbls. over the previous month. The indicated daily average domestic demand for gasoline was 947,000 bbls., which is only slightly below the record figure of the previous month. This continued high consumption of gasoline again caused a material drop in refinery stocks, which fell from 33,455,000 to 29,738,000 bbls. on hand September 30, 1927. With the exception of that of November, 1924, the latter is the lowest point attained by gasoline stocks, since December, 1923. At the current rate of total demand, the September gasoline stocks represent 28 days' supply as compared with 31 days' supply on hand a month ago and 37 days' supply on hand a year ago.

The indicated domestic demand for kerosene, lubricants and wax continued above the average for 1927 and stocks of these commodities were again reduced. Stocks of gas oil and fuel oil at refineries continued to increase, though at a reduced rate as compared with previous months.

The refinery data of this report were compiled from schedules of 329 refineries, with an aggregate daily crude oil capacity of 2,897,000 bbls. These refineries operated during September, 1927, at 79 per cent of their recorded capacity as compared with 332 refineries operating at 79 per cent of their recorded capacity in August, 1927.

Production in the Seminole Field in September, 1927, amounted to 12,925,000 bbls., a daily average of 431,000 bbls. This represents a slight decline from the daily average of the previous month. This small decrease in production, coming after the material decline of August, resulted from a number of good completions in the Little River Pool, which nearly compensated for the natural decline in the older fields of the district. Stocks in the Seminole Field continued to increase but at a considerably reduced rate. These stocks totaled 12,318,000 bbls. on September 30, 1927, as against 11,124,000 bbls. on hand August 31, 1927.

Production in the Panhandle district registered another decrease and dropped below the 100,000-bbl. mark. Seal Beach, however, made a notable recovery, its production rising to the high level of June, 1927.

PRODUCTION AND GRAVITY

(Barrels of 42 U. S. gallons)

	August, 1927 Total	August, 1927 Dy. av.	Sept., 1927 Total	Sept., 1927 Dy. av.	Sep., 1926 Total	Sep., 1926 Dy. av.	Aver. gravity
Seminole	13,532,000	437,000	12,925,000	431,000	634,000	21,000	41.0
Panhandle	3,160,000	102,000	2,845,000	95,000	3,500,000	117,000	36.6
Seal Beach	1,786,000	58,000	1,915,000	64,000	53,000	2,000	24.0

STOCKS AT SEMINOLE

(Barrels of 42 U. S. gallons)

	Aug. 31, '27	Sept. 30, '27	Sept. 30, '26
Producers' stocks	473,000	466,000	.....
Tank farm stocks	10,651,000	11,852,000	.....
Total stocks	11,124,000	12,318,000	.....

ANALYSIS OF SUPPLY AND DEMAND OF ALL OILS

(Including wax, coke and asphalt in thousands of barrels of 42 U. S. gallons)

	August, 1927*	Sept., 1927	Sept., 1926	Jan.-Sept., 1927	Jan.-Sept., 1926
New supply:					
Domestic production:					
Crude petroleum:					
Light	68,765	66,247	54,007	584,950	458,364
Heavy	9,233	8,834	11,775	84,518	100,330
Total crude	77,998	75,081	65,782	669,468	558,694
Natural-gas gasoline	3,214	3,245	2,657	28,410	23,331
Benzol	214	210	174	1,929	1,576
Total	81,426	78,536	68,213	699,807	583,601
Daily average	2,627	2,618	2,287	2,563	2,138
Excess of daily average domestic production over domestic demand	223	203	73	387	22
Imports:					
Crude	6,261	5,122	4,350	41,975	46,492
Refined	774	868	1,132	10,652	16,236
Total new supply all oils	88,461	84,526	74,095	752,407	646,329
Daily average	2,854	2,818	2,470	2,776	2,368
Change in stocks all oils	827	1,134	†3,004	53,282	†29,244
Demand:					
Total demand	87,634	83,392	77,099	699,125	675,573
Daily average	2,827	2,780	1,570	2,561	2,475
Exports:‡					
Crude	1,382	1,297	1,388	11,307	11,770
Refined	11,743	9,649	9,306	93,734	86,259
Domestic demand	74,509	72,446	66,405	594,084	577,545
Daily average	2,404	2,415	2,214	2,176	1,116
Stocks (end of month):					
Crude:					
East of California:§					
Light	287,465	291,581	220,103	291,581	220,103
Heavy	46,208	48,160	57,885	48,160	57,885
California:					
Light	23,262	22,795	30,494	22,795	30,494
Heavy**	91,965	92,186	87,353	92,186	87,353
Total crude	448,900	454,722	395,835	454,722	395,835
Natural-gas gasoline at plants	846	736	493	736	493
Total refined	122,499	117,921	119,289	117,921	119,289
Grand total stocks all oils	572,245	573,379	515,617	573,379	515,617
Bunker oil (included above in domestic demand	4,479	4,436	4,040	37,082	34,813

*Revised. †Decrease. ‡Includes shipments to noncontiguous territories. §Exclusive of producers' stocks. **Includes fuel oil.

RECORD OF WELLS, SEPTEMBER, 1927

(Barrels of 42 U. S. gallons)

	Completions: Oil	Gas	Dry	Total initial production	Average initial production	Drilling Sept. 30
Seminole	82	..	36	137,700	1,700	454
Panhandle	21	12	8	7,700	400	171
Seal Beach	11	..	..	8,600	800	21

PRODUCTION OF CRUDE PETROLEUM BY FIELDS AND STATES WITH CLASSIFICATION BY GRAVITY

(Barrels of 42 U. S. gallons)

	August, 1927 Total	August, 1927 Dy. av.	Sept., 1927 Total	Sept., 1927 Dy. av.	Jan.-Sept., 1927	Jan.-Sept., 1926*
Field:						
Appalachian	2,740,000	88,400	2,585,000	86,200	22,903,000	21,259,000
Lima-Indiana	158,000	5,100	153,000	5,100	1,420,000	1,562,000
Michigan	40,000	1,300	38,000	1,200	331,000	33,000
Illinois-S. W. Indiana	671,000	21,600	689,000	23,000	5,910,000	6,352,000
Mid-Continent	48,596,000	1,567,600	46,314,000	1,543,800	404,672,000	304,045,000
Gulf Coast	4,014,000	129,500	3,944,000	131,500	37,848,000	29,917,000
Rocky Mountain	2,500,000	80,700	2,293,000	76,400	23,136,000	29,517,000
California	19,279,000	621,900	19,065,000	635,500	173,848,000	166,009,000
United States total	77,998,000	2,516,100	75,081,000	2,502,700	669,468,000	558,694,000
State:						
Arkansas	3,230,000	104,200	3,111,000	103,700	31,284,000	45,489,000
California	19,279,000	621,900	19,065,000	635,500	173,848,000	166,009,000
Colorado	229,000	7,400	208,000	6,900	2,134,000	2,057,000
Illinois	605,000	19,500	625,000	20,800	5,379,000	5,862,000
Indiana:						
Southwestern	65,000	2,100	64,000	2,200	531,000	490,000
Northeastern	10,000	300	10,000	300	100,000	118,000
Kansas	3,297,000	106,400	3,229,000	107,700	30,903,000	30,843,000
Kentucky	613,000	19,800	587,000	19,600	5,003,000	4,701,000
Louisiana:						
Gulf Coast	254,000	8,200	242,000	8,100	2,297,000	3,203,000
Rest of State	1,610,000	51,900	1,519,000	50,600	13,664,000	14,259,000
Michigan	40,000	1,300	38,000	1,200	331,000	33,000
Montana	455,000	14,700	415,000	13,800	3,939,000	6,297,000
New Mexico	81,000	2,600	72,000	2,400	982,000	1,198,000
New York	200,000	6,400	192,000	6,400	1,672,000	1,441,000
Ohio:						
Cent. & East.	514,000	16,600	487,000	16,200	4,432,000	4,023,000
Northwestern	148,000	4,800	143,000	4,800	1,320,000	1,444,000
Oklahoma:						
Osage County	1,897,000	61,200	.....	.....	.....	18,751,000
Rest of State	24,386,000	786,600	.....	.....	.....	109,873,000
Pennsylvania	833,000	26,900	813,000	27,100	7,188,000	6,642,000
Tennessee	9,000	300	6,000	200	44,000	33,000
Texas:						
Gulf Coast	3,760,000	121,300	3,702,000	123,400	35,551,000	26,714,000
Rest of State	14,176,000	457,300	14,089,000	469,600	121,755,000	84,830,000
West Virginia	571,000	18,400	501,000	16,700	4,564,000	4,419,000
Wyoming:						
Salt Creek	1,103,000	35,800	985,000	32,800	11,002,000	14,090,000
Rest of State	626,000	20,200	613,000	20,500	5,079,000	5,868,000
Classification by gravity, (approximate):						
Light crude	68,765,000	2,218,200	66,247,000	2,208,200	584,950,000	458,364,000
Heavy crude	9,233,000	297,900	8,834,000	294,500	84,518,000	100,330,000

*Final figures.

STOCKS OF CRUDE PETROLEUM HELD IN THE UNITED STATES

		Aug. 31, 1927	Sept. 30, 1927	Sept. 30, 1926*
AT REFINERIES (and in coastwise transit thereto). Reported by location of storage:				
East Coast:				
Domestic		9,401,000	9,062,000	9,145,000
Foreign		3,029,000	2,986,000	2,648,000
Appalachian		1,783,000	1,768,000	1,688,000
Indiana, Illinois, etc.		2,746,000	2,727,000	1,992,000
Oklahoma, Kansas, etc.		4,400,000	4,536,000	2,312,000
Texas: Inland		1,463,000	1,621,000	942,000
Gulf Coast:				
Domestic		6,758,000	7,295,000	7,571,000
Foreign		203,000	204,000	306,000
Arkansas and Inland Louisiana		448,000	355,000	676,000
Louisiana Gulf Coast:				
Domestic		5,126,000	5,130,000	8,241,000
Foreign		1,288,000	1,083,000	909,000
Rocky Mountain		1,385,000	1,446,000	1,394,000
Total east of California		38,030,000	38,213,000	37,824,000
ELSEWHERE THAN AT REFINERIES: Domestic—Reported by field of origin:				
Appalachian:				
N. Y., Pa., W. Va., Eastern and Central Ohio:	Gross	7,225,000	7,052,000	7,135,000
	Net	6,962,000	6,728,000	6,841,000
Kentucky:	Gross	1,301,000	1,269,000	1,391,000
	Net	1,176,000	1,139,000	1,272,000
Lima-Indiana:	Gross	1,106,000	1,160,000	945,000
	Net	946,000	1,007,000	733,000
Illinois-S. W. Indiana:	Gross	12,676,000	12,639,000	11,934,000
	Net	12,184,000	12,113,000	11,448,000
Mid-Continent:				
Oklahoma; Kansas; Central, North and West Texas:	Gross	213,863,000	220,356,000	148,512,000
	Net	201,977,000	208,300,000	136,197,000
Northern Louisiana and Arkansas:	Gross	29,830,000	29,392,000	37,636,000
	Net	27,099,000	26,640,000	35,000,000
Gulf Coast:	Gross	18,102,000	18,204,000	18,664,000
	Net	17,625,000	17,766,000	18,255,000
Rocky Mountain:	Gross	27,478,000	27,647,000	29,933,000
	Net	27,415,000	27,559,000	29,882,000
Total pipe line and tank farm stocks east of California:	Gross	311,582,000	317,719,000	256,151,000
	Net	295,384,000	301,292,000	239,628,000
Foreign crude petroleum on Atlantic Coast		39,000	53,000	65,000
Foreign crude petroleum on Gulf Coast		220,000	183,000	471,000
Total refinery, pipe line and tank farm stocks of domestic and foreign crude petroleum east of California		333,673,000	339,741,000	277,988,000
Classification by gravity (approx.):				
East of California:				
Light crude (24 degrees and above)		287,465,000	291,581,000	220,103,000
Heavy crude (below 24 degrees)		46,208,000	48,160,000	57,885,000
California:				
Light		23,262,000	22,795,000	30,494,000
Heavy (including fuel)		91,965,000	92,186,000	87,353,000

*Final figures.

NUMBER OF PRODUCING OIL WELLS COMPLETED*

August, 1927	September, 1927	Jan.-Sept., 1927	Jan.-Sept., 1926*
1,120	1,056	11,645	13,742

*For states east of California, from Oil and Gas Journal; for California, from the American Petroleum Institute.

(Continued on Page 80-B)

BUREAU OF MINES STATISTICS FOR SEPTEMBER, 1927

(Continued from Page 80-A)

IMPORTS AND EXPORTS OF CRUDE PETROLEUM (BARRELS)

(From Bureau of Foreign & Domestic Commerce)

	August, 1927 Total	August, 1927 Daily-av.	September, 1927 Total	September, 1927 Daily av.	Jan.-Sept. 1927	Jan.-Sept. 1926*
Imports:	6,261,000	202,000	5,122,000	170,700	41,975,000	46,492,000
From Mexico	3,375,000	108,900	2,234,000	74,400	21,325,000	32,729,000
From Venezuela	2,215,000	71,400	1,759,000	58,600	12,814,000	8,813,000
From Colombia	381,000	12,300	764,000	25,500	5,363,000	1,569,000
From other countries	290,000	9,400	365,000	12,200	2,473,000	3,381,000
Exports	1,382,000	44,600	1,297,000	43,200	11,307,000	11,770,000
Domestic crude oil:						
To Canada	1,200,000	38,700	1,038,000	34,600	9,355,000	9,812,000
To other countries	182,000	5,900	259,000	8,600	1,952,000	1,957,000
Foreign crude oil						1,000

Note: No shipment to territories during September.

INDICATED DELIVERIES OF CRUDE PETROLEUM, EXCLUSIVE OF CALIFORNIA GRADES, TO DOMESTIC CONSUMERS (BARRELS)

	August, 1927 Total	August, 1927 Daily-av.	September, 1927 Total	September, 1927 Daily av.	Jan.-Sept. 1927	Jan.-Sept. 1926*
Domestic petroleum by fields of origin:						
Appalachian	2,655,000	85,700	2,856,000	95,200	22,826,000	21,690,000
Lima-Indiana	112,000	3,600	92,000	3,100	1,079,000	1,803,000
Michigan	40,000	1,300	38,000	1,300	331,000	33,000
Ill. & S. W. Ind.	671,000	21,600	760,000	25,300	5,567,000	5,494,000
Mid-Continent	41,397,000	1,335,400	40,450,000	1,348,300	342,980,000	330,101,000
Gulf Coast	4,085,000	131,800	3,803,000	126,800	40,113,000	30,908,000
Rocky Mountain	2,462,000	79,400	2,109,000	70,300	23,612,000	28,513,000
Deliveries and exports	51,422,000	1,658,800	50,108,000	1,670,300	436,508,000	418,542,000
Deliveries	50,414,000	1,626,300	49,229,000	1,641,000	429,126,000	411,091,000
Fore.gn petroleum	6,300,000	203,200	5,145,000	171,500	42,348,000	46,362,000
Deliveries of domestic and foreign petroleum	56,714,000	1,829,500	54,374,000	1,812,500	471,474,000	457,453,000

SHIPMENTS OF CALIFORNIA OIL THROUGH PANAMA CANAL TO EASTERN PORTS IN UNITED STATES (BARRELS)

	Aug., 1927	Sept., 1927	Jan.-Sept., 1927	Jan.-Sept., 1926*
Crude oil	1,313,000	818,000	3,097,000	9,441,000
Refined products:	2,144,000	2,564,000	18,424,000	16,787,000
Gasoline	1,268,000	1,046,000	3,817,000	6,053,000
Tops				224,000
Gas oil	232,000	457,000	2,950,000	4,334,000
Fuel oil	575,000	1,060,000	6,442,000	5,758,000
Lubricants	69,000	1,000	215,000	418,000

*Final figures.

RUNS TO STILLS AND OUTPUT OF REFINERIES IN THE UNITED STATES, SEPTEMBER, 1927

	Crude Oil—Domestic	Crude Oil—Foreign	Unfinished Oils	Nat.-Gas Gasoline	Total Oils Run to Stills (Bbls.)
East Coast	9,032,000	3,817,000	612,000	129,000	13,590,000
Appalachian	2,449,000	.....	111,000	53,000	2,613,000
Indiana, Illinois, etc.	6,133,000	.....	504,000	133,000	6,770,000
Oklahoma, Kansas, etc.	9,133,000	.....	305,000	381,000	9,819,000
Texas	13,009,000	23,000	849,000	636,000	14,517,000
Louisiana and Arkansas	5,189,000	549,000	212,000	398,000	6,348,000
Rocky Mountain	1,638,000	.....	392,000	121,000	2,151,000
California	17,817,000	.....	*685,000	622,000	19,124,000
Total U. S.	64,400,000	4,389,000	3,670,000	2,473,000	74,932,000
Daily average 9/27	2,146,700	146,300	122,300	82,400	2,497,700
Daily average, 8/27	2,151,700	145,200	114,500	74,900	2,486,400
Texas Gulf Coast	10,047,000	23,000	825,000	551,000	11,446,000
Louisiana Gulf Coast	3,559,000	549,000	63,000	320,000	4,491,000

Output and Losses—	Gasoline (Bbls.)	Kerosene (Bbls.)	Gas Oil and Fuel Oil (Bbls.)	Lubricants (Bbls.)	Wax (Lbs.)
East Coast	3,884,000	934,000	6,013,000	985,000	18,364,000
Appalachian	1,065,000	302,000	814,000	332,000	6,703,000
Indiana, Illinois, etc.	3,569,000	425,000	1,830,000	269,000	4,972,000
Oklahoma, Kansas, etc.	5,036,000	788,000	3,069,000	191,000	3,577,000
Texas	5,878,000	1,226,000	5,362,000	612,000	6,452,000
Louisiana and Arkansas	2,091,000	457,000	2,618,000	99,000	3,925,000
Rocky Mountain	907,000	125,000	579,000	45,000	3,389,000
California	5,286,000	369,000	12,254,000	199,000	.....
Total U. S.	27,716,000	4,686,000	32,339,000	2,732,000	†47,888,000
Daily average, 9/27	923,900	156,200	1,078,000	92,700	1,596,300
Daily average, 8/27	903,500	142,600	1,099,900	88,800	1,341,200
Texas Gulf Coast	4,645,000	1,035,000	4,061,000	531,000	5,949,000
Louisiana Gulf Coast	1,638,000	403,000	1,511,000	99,000	3,925,000

Output and Losses (cont.)—	Coke (Tons)	Asphalt (Tons)	Other Finished Products (Bbls.)	Unfinished Products (Bbls.)	Losses (Bbls.)
East Coast	9,300	174,300	104,000	84,000	464,000
Appalachian	1,500	.....	27,000	41,000	184,000
Indiana, Illinois, etc.	26,300	25,400	116,000	84,000	176,000
Oklahoma, Kansas, etc.	22,200	400	70,000	92,000	439,000
Texas	22,900	19,400	4,000	448,000	747,000
Louisiana and Arkansas	19,300	58,100	135,000	412,000	154,000
Rocky Mountain	5,000	2,500	19,000	321,000	94,000
California	.....	53,000	159,000	*329,000	231,000
Total U. S.	†97,500	†333,100	634,000	1,811,000	2,453,000
Daily average, 9/27	3,250	11,100	21,100	60,400	81,800
Daily average, 8/27	3,060	10,950	24,000	63,100	83,800
Texas Gulf Coast	20,400	19,400	2,000	259,000	635,000
Louisiana Gulf Coast	9,500	56,200	127,000	286,000	61,000

*Includes 388,000 bbls. net tops rerun. †Wax, coke and asphalt equivalent to 280.0 pounds per barrel and 5.02 and 5.55 bbls. per ton, respectively.

STOCKS HELD BY REFINING COMPANIES IN UNITED STATES, SEPTEMBER 30, 1927

	Gasoline (Bbls.)	Kerosene (Bbls.)	Gas Oil and Fuel Oil (Bbls.)	Lubricants (Bbls.)
East Coast	4,548,000	1,838,000	10,631,000	2,594,000
Appalachian	824,000	309,000	940,000	986,000
Indiana, Illinois, etc.	3,570,000	810,000	1,896,000	675,000
Oklahoma, Kansas, etc.	1,831,000	633,000	5,790,000	385,000
Texas	3,984,000	1,580,000	3,549,000	1,741,000
Louisiana and Arkansas	1,619,000	971,000	3,151,000	89,000
Rocky Mountain	1,971,000	147,000	674,000	103,000
California	11,391,000	1,832,000	.....	874,000
Total U. S.	29,738,000	8,120,000	*31,631,000	7,447,000
Total U. S., 8/31/27	33,455,000	8,373,000	*30,346,000	7,491,000
Texas Gulf Coast	3,335,000	1,436,000	6,996,000	1,699,000
Louisiana Gulf Coast	1,515,000	947,000	2,583,000	89,000

	Wax (Lbs.)	Coke (Tons)	Asphalt (Tons)	Other Finished Products (Bbls.)	Unfinished Oils (Bbls.)
East Coast	70,156,000	32,700	61,600	101,000	6,998,000
Appalachian	21,604,000	800	2,300	113,000	1,193,000
Indiana, Illinois, etc.	14,497,000	23,500	23,200	147,000	2,992,000
Oklahoma, Kansas, etc.	6,261,000	53,800	1,400	75,000	3,270,000
Texas	9,319,000	66,300	6,400	9,000	9,437,000
Louisiana and Arkansas	36,857,000	63,900	21,300	50,000	2,347,000
Rocky Mountain	11,403,000	72,400	10,700	26,000	2,032,000
California	75,000	.....	49,400	339,000	†9,702,000
Total U. S.	170,172,000	313,500	176,300	863,000	36,962,000
Total U. S., 8/31/27	180,645,000	303,600	193,200	879,000	38,711,000
Texas Gulf Coast	9,222,000	55,300	6,400	4,000	8,242,000
Louisiana Gulf Coast	36,857,000	61,400	21,000	47,000	1,891,000

*East of California. †Includes 2,881,000 bbls. tops in storage.

GASOLINE PRODUCTION BY THE VARIOUS METHODS—SEPTEMBER, 1927

(Barrels)

	Straight Run	%	Cracked	%	Natural-gas Gasoline	%	Total
East Coast	2,388,000	62	1,367,000	35	129,000	3	3,884,000
Appalachian	753,000	71	259,000	24	53,000	5	1,065,000
Indiana, Illinois, etc.	1,851,000	52	1,585,000	44	133,000	4	3,569,000
Oklahoma, Kansas, etc.	3,134,000	62	1,521,000	30	381,000	8	5,036,000
Texas	2,768,000	47	2,474,000	42	636,000	11	5,878,000
Louisiana and Arkansas	1,067,000	51	626,000	30	398,000	19	2,091,000
Rocky Mountain	495,000	55	291,000	32	121,000	13	907,000
California	4,270,000	81	191,000	4	*825,000	15	5,286,000
Total U. S.	16,726,000	60	8,314,000	30	2,676,000	10	27,716,000
Total U. S., 8/27	17,001,000	61	8,482,000	30	2,527,000	9	28,010,000
Gulf Coasts	2,681,000	43	2,731,000	43	871,000	14	6,283,000

*Includes natural-gas gasoline run through pipe lines.

COMPARATIVE ANALYSIS

(Thousands of barrels of 42 U. S. gallons.)

	Production Total	Production Dy. Av.	Imports† Total	Imports† Dy. Av.	Exports† Total	Exports† Dy. Av.	Stocks End of Period	Dom. Demand Total	Dom. Demand Dy. Av.
Crude petroleum:									
August, 1927	71,206	2,297	6,261	202	1,382	45	‡356,935	.....	....
September, 1927	68,789	2,293	5,122	171	1,297	43	‡362,536	.....	....
Jan.-Sept., 1927	619,411	2,269	41,975	154	11,307	41	‡362,536	.....	....
September, 1926	66,420	2,214	4,350	145	1,388	46	‡314,802	.....	....
Jan.-Sept., 1926	573,232	2,100	46,492	170	11,770	43	‡314,802	.....	....
Gasoline:									
August, 1927	28,010	904	348	11	4,193	135	§3,455	29,779	961
September, 1927	27,716	924	515	17	3,539	118	§9,738	28,409	947
Jan.-Sept., 1927	244,694	896	3,939	14	33,605	123	§9,738	224,313	822
September, 1926	25,360	845	228	8	3,782	126	§3,257	22,970	766
Jan.-Sept., 1926	219,654	805	3,788	14	33,283	122	§3,257	195,777	717
Kerosene:									
August, 1927	4,420	143	4	....	1,700	55	§3,373	3,389	109
September, 1927	4,686	156	.....	....	1,659	55	§3,120	3,280	109
Jan.-Sept., 1927	41,537	152	12	....	14,211	52	§3,120	27,793	102
September, 1926	5,207	174	21	1	1,856	62	§3,162	3,406	114
Jan.-Sep., 1926	45,886	168	71	....	16,467	60	§3,162	28,449	104
Lubricants:									
August, 1927	2,752	89	1	....	754	24	7,491	2,004	65
September, 1927	2,782	93	.....	....	861	29	7,447	1,965	66
Jan.-Sept., 1927	23,686	87	6	....	7,371	27	7,447	16,450	60
September, 1926	2,645	88	2	....	701	23	7,149	2,023	67
Jan.-Sept., 1926	24,162	88	29	....	6,992	26	7,149	17,243	63
Wax (thous. pounds):									
August, 1927	41,576	1,341	2,656	86	34,229	1,104	180,645	20,859	673
September, 1927	47,888	1,596	3,040	101	31,780	1,059	170,172	20,621	687
Jan.-Sept., 1927	432,686	1,586	14,537	53	247,884	908	170,172	214,498	786
September, 1926	49,228	1,641	252	8	29,303	977	159,779	25,462	849
Jan.-Sept., 1926	479,151	1,755	6,736	25	253,043	927	159,779	189,456	694
Gas oil and fuel oil:									
August, 1927	34,098	1,100	391	13	4,639	150	§122,311	.....	....
September, 1927	32,339	1,078	341	11	3,258	109	§123,817	.....	....
Jan.-Sept., 1927	292,674	1,072	6,302	23	35,293	129	§123,817	.....	....
September, 1926	30,698	1,023	818	27	2,750	92	§114,504	.....	....
Jan.-Sept., 1926	267,751	981	11,699	43	27,487	101	§114,504	.....	....

*Figures in this column for crude petroleum are runs to stills. †From Bureau of Foreign & Domestic Commerce, subject to revision. Exports, except for wax, include shipments to Alaska, Hawaii, and Porto Rico. ‡East of California, plus California light. §East of California, plus California heavy.

Natural-Gas Gasoline, September, 1927

Natural-gas gasoline production reached a new high level in September, 1927, when the total output amounted to 136,300,000 gallons, a daily average of 4,540,000 gallons. This represents an increase over the daily average of the previous month of 190,000 gallons and over the previous record of April, 1927, of 100,000 gallons. This rise in output was largely due to increased output in California and of the plants in the Seminole district. Stocks of natural-gas gasoline at the plants again showed a material decline, there being 30,899,000 gallons on hand September 30, 1927, as against 35,516,000 gallons (revised figures) on hand the previous month.

(Thousands of Gallons)

	Natural-Gas Gasoline—Production*—Aug., 1927	Natural-Gas Gasoline—Production*—Sept., 1927	Natural-Gas Gasoline—Production*—Sept., 1926	Natural-Gas Gasoline—Stks. End Mo.—Aug., 1927	Natural-Gas Gasoline—Stks. End Mo.—Sept., 1927	Blended Motor Fuel, Sept., '27 (1)	Blended Motor Fuel, Sept., '27 (2)	Blended Motor Fuel, Sept., '27 (3)
Appalachian	5,700	5,600	5,700	2,558	2,434	217	184	242
Indiana, Illinois, etc.	1,200	1,200	1,300	306	256	32	1	15
Oklahoma, Kansas, etc.	48,700	50,500	42,000	†18,759	16,590	1,797	3,407	632
Texas	27,200	26,300	19,600	10,709	8,684	268	489	136
Louisiana and Arkansas	7,300	6,400	6,300	1,252	965	187	257	14
Rocky Mountain	3,900	3,900	3,900	672	634	86	27	116
Total east of Calif.	94,000	93,000	78,800	†34,256	29,563	2,587	4,365	1,155
California	41,000	42,400	32,800	1,260	1,336	Not Available		1
Total United States	135,000	136,300	111,600	†35,516	30,899	....	....	1,156
Daily average	4,350	4,540	3,720	.....	.....	....	....	....

*Approximately 97 per cent net production; 3 per cent gross. †Revised. (1) Natural-gas gasoline used. (2) Naphtha or other oils used. (3) Stocks end of month.

The indicated output of motor fuel from the above and other sources may be expressed by the following table:

(Thousands of Gallons)

	August, 1927	Sept., 1927	Sept., 1926
Total gasoline produced at refineries *, †	1,176,400	1,164,100	1,065,100
Raw gasoline blended at plants east of California	3,200	2,600	2,600
Raw gasoline sold direct to jobbers (estimated)	800	800	800
Benzol production‡	9,000	8,800	7,300
Total motor fuel production	1,189,400	1,176,300	1,075,800
Daily average	38,370	39,210	35,860
*Includes natural-gas gasoline blended at refineries	97,500	103,900	77,400
†Includes natural-gas gasoline run through refinery pipe lines in California	8,600	8,500	11,100

‡Estimated with production of by-product coke as a basis.

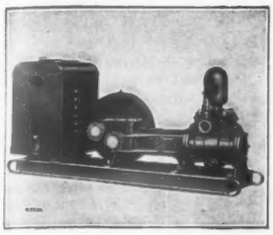
CALIFORNIA RECEIPTS AND PETROLEUM IMPORTS

Imports of crude and refined oils at principal United States ports for the week ended October 29 totaled 1,534,000 bbls., a dai'y average of 219,143 bbls., compared with 975,000 bbls., a daily average of 139,286 bbls. for the week ended October 22 and a daily average of 170,000 bbls. for the four weeks ended October 29.

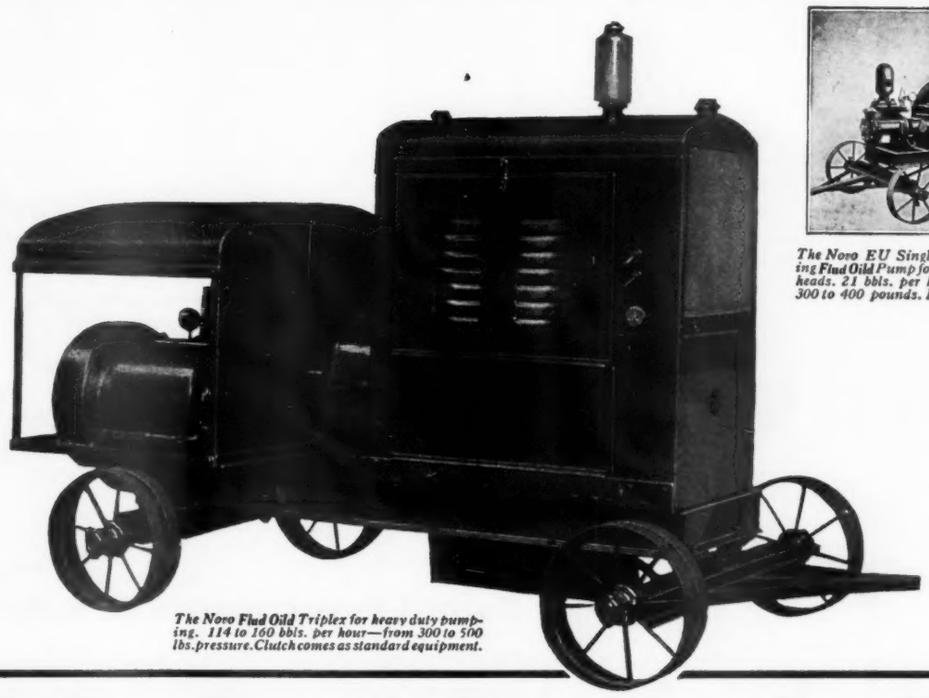
At Atlantic Coast ports:	Oct. 29
Baltimore	296,000
Boston	125,000
New York	663,000
Philadelphia	64,000
Others	145,000
Total	1,293,000
Daily average	184,714
At Gulf Coast ports—	
New Orleans and Baton Rouge	216,000
Port Arthur and Sabine district	25,000
Total	241,000
Daily average	34,429
At all United States ports:	
Total	1,534,000
Daily average	219,143
Daily average four weeks	170,000

Receipts of California crude and refined o'ls at Atlantic and Gu'f Coast ports for the week ended October 29 totaled 889,000 bbls., a daily average of 127,000 bbls., against 589,000 bbls., a daily average of 84,143 bbls. for the week ended October 22 and a daily average of 105,714 bbls. for the four weeks ended October 29.

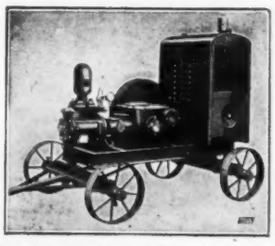
At Atlantic Coast ports:	Oct. 29
Baltimore	170,000
New York	368,000
Philadelphia	246,000
Others	105,000
Total	889,000
Daily average	127,000
Daily average four weeks	105,714
Distribution of total California receipts is as follows:	
Crude	198,000
Gasoline	305,000
Gas oil	78,000
Fuel oil	250,000
Lubricating oils	58,000
Total	889,000



The Novo EW Duplex Flud Oild double acting Pressure Pump—for either oil or water. 50 to 160 bbls. per hour, up to 400 pounds pressure. Clutch comes as standard equipment on outfits powered with 4-cylinder engines. Equipped with spring loaded valves when ordered for oil pumping.



The Novo Flud Oild Triplex for heavy duty pumping. 114 to 160 bbls. per hour—from 300 to 500 lbs. pressure. Clutch comes as standard equipment.



The Novo EU Single Cylinder, double acting Flud Oild Pump for handling water at high heads. 21 bbls. per hour at pressures from 300 to 400 pounds. Has hydraulic packing.

New Trouble-Free Portable Pumping—Out Where Trouble-Free Pumping Means Economy

In the New Novo Flud Oild Series you have three new Portable pressure pumps that give an unbelievable freedom from care, trouble, and high costs—pumps that can handle any capacity from 21 to 160 barrels per hour over any distance from 10 feet to 10 miles.

New Flud Oild Lubrication guards every gear, every crosshead—holds the hazards of wear and the power wastes of friction reduced to a minimum. And it virtually guarantees longer-lived pumping ability and far lower costs.

Because of this constant, thorough, unfailing lubrication, you can start a Novo Pump and practically forget it. The only attention it requires is an occasional inspection to see that the oil is kept at the proper level. It keeps a never-ending supply of water coming to your steam rig. And when used for oil gathering, the EW Duplex keeps the gathering pipes busy *every* minute it is in operation.

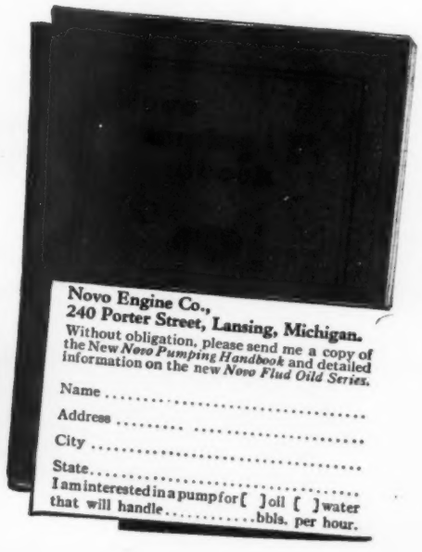
The coupon below will bring you detailed information on the new Flud Oild Series and a copy of the new Novo Pumping Handbook that shows what Novo Pumps are doing in every type of work. *Send it today.*

Flud Oild

The cover of the *dirt-proof* case has been removed to show you the crankshaft, bearings, gear, and pinion of the new Novo NT Triplex Pump—and the new Flud Oild lubricating system. This is the most advanced method of oiling heavy duty pressure pumps.

Two oil dippers (only one is shown) pick up the oil from the bottom of the crank case and throw it in flood-like streams into the reservoir under the intermediate shaft and pinion. Large ducts carry oil to the bearings, crossheads, and connecting rod ends. And the large crankshaft gear runs in oil at the bottom of crank case.

Every moving part is constantly, thoroughly flooded with oil. Every possibility of excessive, devastating wear is entirely eliminated.



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240 Porter Street, Lansing, Michigan.

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I am interested in a pump for [ ] oil [ ] water that will handle .....bbls. per hour.

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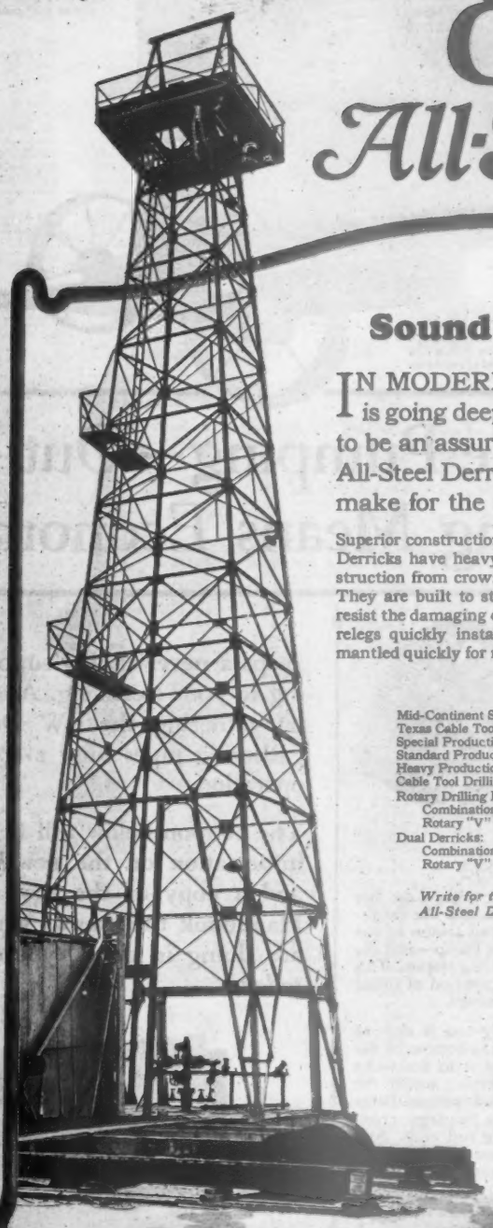

Sound Investments in Safety

IN MODERN drilling practice, while the average well is going deeper and deeper and 10,000 foot depths seem to be an assured reality for the very near future, Emsco All-Steel Derricks are the soundest investment you can make for the safety of workmen, wells and production.

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Typical Emsco 84′ Cable Tool Drilling Derrick with 25′ Calf Wheel Window.

EMSCO STEEL EQUIPPED WELLS ARE SAFE

GULF COAST FIELDS

(Continued from Page 51)

barrel at 4,594 feet. The Texas Company's No. 1 Havard, 5 miles east of Davis Hill, is drilling at 1,500 feet. Two miles northeast of Cleveland, Barlow and associates' No. 1 Mincheliff is drilling at 2,200 feet.

Matagorda County

Gulf Production Co.'s No. 4 Sanborn at Hawkinsville is drilling at 1,100 feet. At Markham, Valley Oil Co.'s No. 1 Hudson is drilling at 2,300 feet. Rycade Oil Corp. and Humble company's No. 5 Kountze is drilling at 2,300 feet. A gasoline rig is on location for John Deering and associates' No. 1 Coney Cattle Co.

Orange County

Sun Oil Co.'s No. 2 Brown is being rigged to drill deeper. Rycade Oil Corp.'s No. 13 State E is to be drilled deeper. Texhoma Oil Co.'s No. 16 Chesson is drilling at 4,136 feet. Sinclair Oil & Gas Co.'s No. 4 Granger is drilling at 3,275 feet. Supreme Oil Co.'s No. 2 Jackson is pumping 35 bbls. from 3,567 feet. Gulf Production Co.'s No. 3 Hager and Moore is drilling at 3,025 feet and No. 18 Lee Hager fee is drilling at 4,150 feet. Rex Petroleum Co.'s No. 6 Carbello is fishing at 3,500 feet and Gulf Coast Oil Corp.'s No. 5 Leon is being rigged to drill deeper.

Wharton County

The following is an accumulation of completions at Boling not carried in regular scouting reports.

Wharton County—Boling

Gayle-Weathersbe's No. 2 Kostelink abandoned at 490 feet. Gulf Production Co.'s No. 2 Abendroth, sand 1,203-13 feet; initial production 200 bbls.; pumping; No. 1 Monroe Britton, total depth, 750 feet; abandoned; No. 1 T. Plachy, total depth, 915 feet; abandoned. Hyde Production Co.'s No. 3 W. Banker, sand, 406-14 feet; initial production 20 bbls.; No. 5 Banker, total depth, 534 feet; lost returns; abandoned; No. 6 Banker, total depth 452 feet, gumbo; abandoned; No. 1 R. Volney, total depth 502 feet; abandoned; No. 4 J. W. Woytek, total depth, 424 feet; abandoned. Ingram and others' No. 1 Mensing, total depth, 831 feet in sand rock; abandoned. Miller and others' No. 5 J. Kostelink, total depth 486 feet; abandoned. Sun Oil Co.'s No. 2 H. R. Farmer, cap 1,091-94 feet; oil show; top gyp, 1,219 feet; total depth, 1,263 feet; salt top, 1,249 feet; abandoned. Texas Gulf Sulphur Co.'s No. 1 Allen, total depth, 815 feet; abandoned; No. 1 J. J. Anderson, total depth, 800 feet; abandoned; No. 1 Banker, total depth, 815 feet; abandoned; No. 2 Banker, total depth, 1,050 feet; abandoned; No. 3 Banker, total depth, 900 feet; abandoned; No. 2 J. C. Bay, total depth, 750 feet; abandoned; No. 1 Chase, total depth 900 feet; abandoned; No. 1 Cloud, total depth, 1,150 feet; abandoned. Weed-Gayle Oil Co.'s No. 13 J. C. Bay, total depth 435 feet; abandoned; No. 13 Feltz, total depth, 440 feet; abandoned; No. 15 Joe Feltz, total depth, 567 feet; abandoned; No. 16 Joe Feltz, total depth, 452 feet; abandoned. Zeno-Gayle Oil Co.'s No. 3 Kostelink, gas show, 330 feet; total depth, 443 feet; cap top, 437 feet; initial production 200 bbls.

LOUISIANA GULF COAST

Acadia Parish

In the Evangeline Field, Coastal Oil & Refining Co.'s No. 95 Crowley has been shut down at 2,555 feet with drill stem stuck in the hole. Evangeline Oil Co.'s No. 1 Conklin is drilling below 650 feet. The Texas Company is setting casing at 3,460 feet in No. 2 Rayne. Port City Oil Co. is planning to abandon No. 2 S.F.S. after drilling to 1,650 feet. Cline and associates have a location staked for No. 6 on the Conklin lease.

Ascension Parish

Gulf Refining Co.'s No. 3 United Land Co., on the Sorrente Dome, is drilling in a water sand at 813 feet.

Calcasieu Parish

In the Starks Dome district, Gulf Refining Co.'s No. 7 Lutcher-Moore is coring in a sand at 4,230 feet. This company's No. 8 Industrial Lumber Co. is coring a packed sand at 3,998 feet. Gulf's No. 10 Higgins, Edgerly Field, is flowing 600 bbls. net oil daily along with some salt water and sediment. Production is from a sand at 3,075 feet. This company also has another well in this field, No. 3 Robert Lincoln fee, which is flowing 150 bbls. of net oil daily from sand at 3,100 feet. Rex Petroleum Co.'s No. 5 Hunter, in the same field, is down 3,975 feet where it is washing. Wilson Broach's No. 5 Wilson is to be put on the pump. It is in a sand at 3,500 feet. Hercules Oil Co.'s No. 3 Paraffine is flowing 1,000 bbls. of oil from sand at 3,575 feet. Plummer Oil Co.'s No. 1 Lyons, in this district, is drilling at 3,260 feet, and West Edgerly Oil Co.'s No. 1 Krouse & Managam at 3,500 feet. McDaniel & Ellis' No. 1 Ecker is in salt at 4,000 feet. Doctor Kintze's No. 1 Beckenstein is in a sand at 4,260 feet.

In the Lockport Field of Calcasieu Parish, Newton Drilling Co.'s No. 1 Dupre is in gumbo at 2,380 feet. Vacuum Oil Co. and Gulf Refining Co. have a location for another test, the No. 19 Miller, in this field. The same operators are drilling at 2,925 feet in No. 3 G. W. Farquahar and others, at 2,500 feet in No. 4 Bayou D'Inde State, and at 5,575 feet in No. 2 Frieber & Wolf. Their No. 8 Miller is down 4,400 feet where it has a fishing job.

In the Vinton district, Marrs McLean has a derrick up for 12 Gray. Vinton Petroleum Co. has a location for No. 9 Gordon. The latter company has two other tests drilling in this field, No. 5 Rescue at 2,900 feet and the No. 52 Gray at 2,040 feet.

Cameron Parish

Pure Oil Co. is pulling the 4½-inch casing in No. 4 Sweet Lake, Sweet Lake Field. This test is down 5,141 feet. This company's No. 5 Sweet Lake is shut down for orders at 5,120 feet. No. 2 has a sand at 5,100 feet and is to be pumped. No. 3 is down 5,897 feet where the liner is being pulled.

In the Hackberry district, Yount Lee Oil Co. is fishing drill stem at 5,260 feet in No. 5 State.

Iberia Parish

Calcasieu Oil Co. is drilling a hard sand at 3 982 feet in No. 1-A Schwing. Gulf Refining Co. has been fishing for drill stem at 4,442 feet in No. 1 Broussard. The latter is in the Faussa Point district. In the same district, the Gulf has encountered 35 feet of an oil-showing sand at a total depth of 813 feet. Ten-inch casing will be set at 700 feet for a test with an 8-inch strainer. At Vermillion Bay, Louisiana Land & Exploration Co. has a rig up for No. 1-A Vermillion Bay.

Iberville Parish

Roxana Petroleum Co. has a location in the White Castle district for No. 1 Wilbert.

LaFourche Parish

Gulf Refining Co.'s No. 1 Dibert-Stark is on top of the cap rock at 1,303 feet. The 6⅝-inch casing has been set at 1,261 feet.

St. Martin Parish

Rycade Oil Corp.'s No. 1 Atchafalaya has been shut down for repairs. It is in a sand and lime at 3,874 feet. Ohio Oil Co.'s No. 3 Martin is bailing and showing a little oil from perforated casing at 1,150 feet. Total depth of the hole is 1,185 feet.

St. Mary's Parish

Border's No. 1 Grand Lake has been abandoned at 4,863 feet in a shale formation. In the same district, Jacob and Dannenbaum have a location for No. 1 Viguerie. Louisiana Exploration Co. is moving in a heavy rig to deepen No. 1 W. Cote Blanche. The hole is in gumbo at 2,632 feet.

Terre Bonne Parish

Southern Gas Co. has a gas sand at 1,390 feet in No. 3 South Down. The 6⅝-inch casing has been cemented at 1,340 feet. Terre Bonne Gas Co.'s No. 1 Gaidry is drilling at 2,268 feet and showing gas.

New Locations

New locations in the Gulf Coast region for the week ending November 5 are as follows:

Austin County

Anderson-Lyle's No. 1 Gobel, James Cummings Hacienda Survey, 4,100 varas SE along SW line from W cor. of survey, 150 feet NE from said line.

Raccoon Bend—Humble Oil & Refining Co.'s No. 2 R. G. Paine, William

2 lbs. of Gas Pressure = 150 lbs. of Steam with the PERFECTO

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That's what thousands of Perfecto Burners are doing for 21 leading oil producers of Kansas, Oklahoma, California, Texas, Arkansas, Montana, Wyoming and Louisiana—turning low gas pressure, formerly wasted—into live, working steam.

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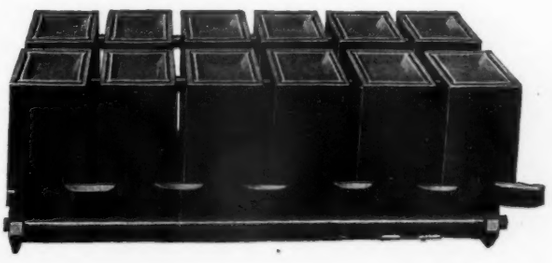


White League, 1,900 feet SE from N cor. along NE line, 500 feet SW at R/A to NE line of Paine's 365-acre tract; 2,000 feet NW of No. 1 Paine.

Brazoria County

Rucks-Reed-Patterson's No. 1 Muldoon, E. J. Debard Survey, 700 feet each way out of SW cor. of survey; co-ord. 203-S. 224-E.

Fort Bend County—Blue Ridge

R. C. Cullen's No. 1 Lafferty, J. Pointevant Survey No. 3, 230 feet east, 100 feet north of SW cor. of Lafferty's 5-acre tract.

Fort Bend County—Blue Ridge

Sam Watts' No. 1 Blakely, Edward Drew Survey, Block B, Lot No. 6, 50 feet NL, 50 feet WL of lot. Long Point—Gulf Production Co.'s No. 2 A. Beard, 600 feet due SE from No. 1 A. Beard.

Harris County—Goose Creek

Humble Oil & Refining Co.'s No. 73 Simms-Smith, William Scott Survey, 1,000 feet due east of No. 60. Pierce Junction—Gulf Production Co.'s No. 22 Taylor, 200 feet south of No. 19, 50 feet west of east line. Leonard Petroleum Co.'s No. 1 Marland fee, 250 feet west of Leonard Petroleum Co.'s No. 1 B. & M., 37 feet north of railroad right of way. Harris County—Hunt and others' No. 1 Adoue-Lobit, Ben Barrow Survey, 1,500 feet south of north line, 300 feet east of west line—tentative; co-ord. 153-S. 243-E.

Jefferson County—Spindletop

Sun Oil Co.'s No. 16 McLean, 128 feet west of No. 7, 30 feet south of north line of McLean's 5 acres; No. 17 McLean, 100 feet south of No. 7, 30 feet west of Jack-Duff WL. Yount Lee Oil Co.'s No. 45 Gladys City, 100 feet north of No. 43, in line with Nos. 43 and 39.

Liberty County—Davis Hill

The Texas Company's No. 1 Harvard, Manuel De Los Santos Coy Survey, 500 feet west, 200 feet north of SW cor. of Gulf Gibson's 50 acres, on Havard's 30 acres.

Waller County

Fluckinger and others' No. 2 Fluckinger, B. B. B. & C. Survey No. 3, 50 feet due west of No. 1, east of Hempstead.

Wharton County—Boling

Texas Gulf Sulphur Co.'s No. 5 W. Banker, S. F. A. Survey, M. V. L. Co. Subdivision, Block 12, 640 feet NW line, 450 feet NE line of block; No. 6 W. Banker, S. F. A. Survey, M. V. L. Co. Subdivision, Block 11, 730 feet NW line, 120 feet NE line of block; No. 4. J. C. Bay, S. F. A. Survey, M. V. L. Co. Subdivision, Block 15, 550 feet NE line, 450 feet SE line of block; No. 2 E. M. Chase, S. F. A. Survey, M. V. L. Co. Subdivision, Block 5, 425 feet SW, 525 feet SE from N corner of block; No. 1 F. Kostelink, S. F. A. Survey, M. V. L. Co. Subdivision, Block 45, 1,000 feet down NE line from N corner, 100 feet SW at R/A; No. 1 T. Plachy, S. F. A. Survey, M. V. L. Co. Subdivision, Block 18, 1,590 feet SW line, 200 feet NW line of block; No. 1 R. Volney, S. F. A. Survey, M. V. L. Co. Subdivision, Block 32, 100 feet each way out of S corner of block. Weed-Gayle Oil Co.'s No. 10 W. Banker, S. F. A. Survey, M. V. L. Co. Subdivision, Block 13, 430 feet SW, 210 feet SE of N corner of block.

NEW FIELD OPENED AT SEACLIFF, CALIF.

(Continued from Page 31)

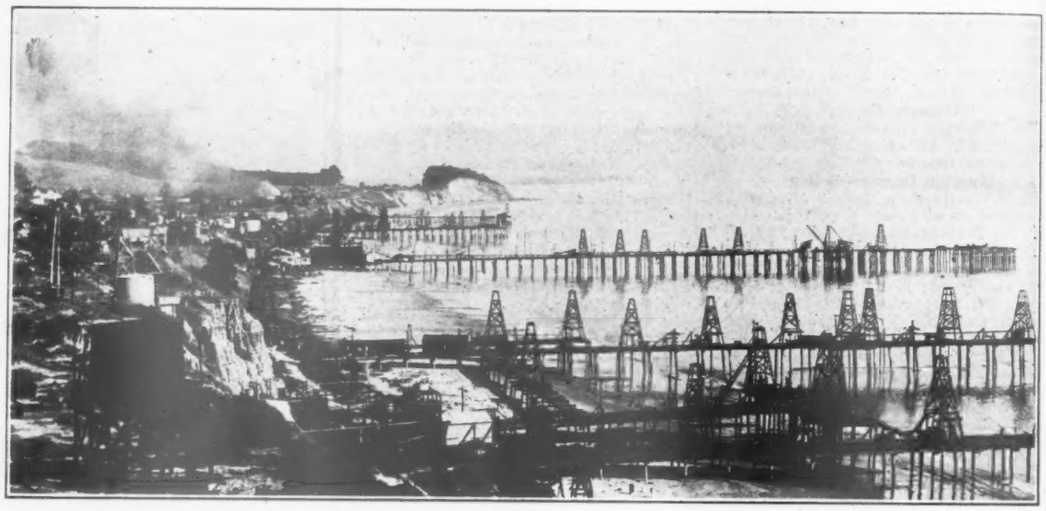
the rapidity with which drilling operations are carried to conclusion.

As an interesting sidelight on the discovery of oil at Seacliff it might be of interest to mention the fact that the Pan American secured the state property from the Chanslor-Canfield Midway Oil Co. The latter as a matter of policy did not desire to drill this particular piece of property and turned it and another piece of acreage over to the former for immediate work. Before passing possession to the Pan American the Chanslor-Canfield Midway interests established a nice record in erecting the rig for No. 1 State, the discovery, by pouring cement and putting the final touches on the derrick in less than seven working days.

Production in Ocean

The extent and productivity of the Seacliff area is still conjectural in view of the limited development done to date but it is a foregone conclusion that production may be expected out in the open ocean. This has resulted in a rather interesting development and one which may establish a precedent for future work. Operators have been battling for several months in an effort to secure tideland permits. A very complex case has arisen over the rights of various individuals and the State Supreme Court is expected to pass judgment on one phase of the situation within the next day or two. Some doubt has been raised as to the validity of the development permits already issued by Surveyor-General Kingsbury covering tidelands in this particular area and court litigation may hold up actual ocean work indefinitely. The state surveyor-general has issued three separate permits for drilling along the coast line. A. L. Hobson has one as a littoral or riparian owner while J. W. Ferguson and A. H. Hawkins have one each as permittees not owning riparian rights. The attorney general has since ruled that the state has no right to alienate for mineral purposes any land which it holds for the purpose of navigation, commerce or fishery. The question involved is constitutional and affects the State of California, the littoral owners and the right of the state to deprive littoral owners of their access to the sea by granting prospecting permits. The littoral owners have taken the position that the state cannot divest them of their rights and title in the tidelands by granting permits to strangers.

In view of the success which prospectors have enjoyed during the year to date, it might not be amiss to call attention to the fact that prospectors have opened up 16 fields during the past nine-year period, an average of almost two a year. Elk Hills and Richfield were discovered by the Standard and Union in 1919 and, while the latter did not chalk up any new discoveries during the following year, 1920, the Standard made a valuable find on the Bolsa Chica lease at Huntington Beach and this district was really the first of the major fields to be opened up in the Los Angeles Basin. The Union got into its swing again in 1921, however, and the company climaxed a long seven-year wildcatting period in the Santa Fe Springs Field by bringing in No. 1 Bell, the discovery, as a big flowing well. The Shell, which had heretofore concentrated its activities in the northern part of the state, started a wildcat out on Signal Hill and its No. 1 Alamitos, although it only came in doing about 250 bbls. daily during the latter part of 1921, was one of the most important wells finished during the past 10 years, as subsequent developments have shown. The simultaneous development of Huntington Beach, Santa Fe Springs and Long Beach resulted in the greatest overproduction situation ever witnessed in California and the resulting chaotic condition in 1923 when all three fields reached their peak is one of the interesting highlights of the oil industry on the Pacific Coast. The Chanslor-Canfield Midway Oil Co. found Torrance in 1922 and, while only one new field was opened up that year, the well known law of averages was working to perfection during 1923 and 1924 as two new fields were discovered during each of these two 12-month periods. Wheeler Ridge and Dominguez were thrown open for work in 1923, the former being discovered by the Standard and the latter by the Union Oil Co. The Wheeler Ridge Field, which is located in the extreme southern end of the San Joaquin Basin, never reached major proportions due to natural limitations in both area and productivity of sands encountered, the total recovery to date being only 1,474,689 bbls. Dominguez, on the other hand, is a highly prolific field, although a glance at the total production to date would not tend to confirm this statement. The relatively small yield credited to this field is due to the mutual co-operative policy of



Part of Summerland Field in California where production is procured in the ocean. Part of the newly discovered Seacliff district in Ventura County lies in the Pacific Ocean and there may be a repetition of work similar to Summerland although deeper drilling will be necessary.

restricting production by the Union and Shell, which companies incidentally control all but a small block of acreage out on the east front and another limited section along the extreme north edge.

Rosecrans and Inglewood

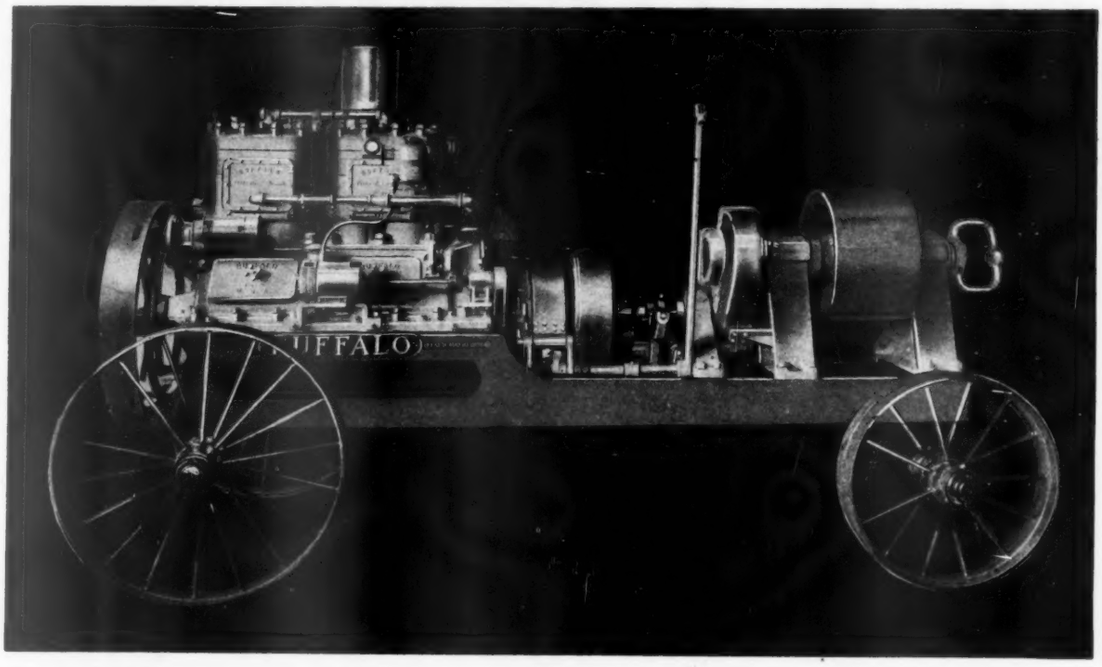
The Union and Standard divided honors in 1924, the former opening up the Rosecrans Field and the latter, Inglewood. The production of both areas reflect a mutual drilling restriction. The upper sand at Inglewood is fairly well drilled up but the lower zone has been definitely corked up until conditions improve. The year of 1925 was a very lean one but prospectors made up for lost time by bringing in two new districts, Seal Beach and Mount Poso, in 1926. The Marland gets credit for developing the first commercial production in the former field after a number of others had previously failed to locate the elusive oil sand. The Pan American subsequently drilled an outpost in the extreme northwestern part of the field and extended the productive limits over into what is now termed the Alamitos Heights town lot area, a small node or protuberance adjoining the Marland's Selover lease on the north. The first 10 months of 1927 has seen four new fields, Goleta, Round Mountain, Potrero and Seacliff, opened up for work and another may be found before New Year's. No particular mention has been made of the Barnsdall's No. 1 Edwards, 5 miles west of the Goleta Field, which came in flowing 500 bbls. per day a short time ago, as this structure is in a general way, a continuation of Goleta anticline although there is a saddle in between the two. There is no question but that the Barnsdall has opened up a new field but it is quite likely that future production of the Edward's anticline and the Tecolote anticline will be grouped together to form the Goleta Field as there is no indication that highly prolific production may be secured. The oil is of an exceptionally high grade, testing around 41 degrees and showing a gasoline content of something like 65 per cent. Geis & Bradford's wildcat over on Sulphur Mountain looks like an almost sure shot to open up a new field, especially in view of the fact that the well has already made a few hundred barrels. Mechanical trouble has been holding up work and judgment should be withheld temporarily until a definite production test has been made. Wildcat operations in 1928 will undoubtedly continue at a high rate regardless of existing conditions and it is almost a foregone conclusion that additional fields will be discovered before the close of that year. As a matter of fact prospecting work in the southern part of the San Joaquin Basin may result in additional discoveries within the next few months as there are quite a number of promising tests already under way. Watch developments in the San Joaquin Valley Basin during the next few years for nearly all of this acreage is geologically favorable for the accumulation of oil in commercial quantities.

BUREAU OF STANDARDS IN REGROUPING PLAN

An important change in the administrative organization of the Bureau of Standards, which it is believed will make for increased effectiveness through a better grouping of the bureau's numerous activities has been announced by Dr. George K. Burgess, the director of the bureau.

Under the new arrangement, Ray M. Hudson, chief, Division of Simplified practice, has become assistant director in charge of the Division of Commercial Standards, and Edwin W. Ely, assistant chief of the division, has become acting chief of the Division of Simplified Practice.

The regrouping is a recognition of the importance of standarddization in the commercial work, this portion of the bureau's work having grown with astonishing rapidity during the past few years. Mr. Hudson will be in charge of the group that will have the supervision, direction, formulation, and co-ordination of commercial standards, with particular reference to the needs of industry, embracing the work of the Division of Simplified Practice, Division of Commercial Standards and that part of the work of the Division of Building and Housing relating to building codes and standards. In addition, the correlation of the work of the Federal Specifications Boards with commercial practice, and liaison duties with other branches of the Department of Commerce and with other departments in questions relating to commercial standards, will be included in the group headed by Mr. Hudson.



The Buffalo Drilling Unit Cuts Down Operating Costs

Contractors in the Pennsylvania, Texas and Kansas fields have found that the Buffalo Drilling Unit cuts their operating costs.

It does not require the services of a licensed engineer. It can be rigged up in one hour—requires no special setting forms—the old rig timbers can be used which means a saving of from $40.00 to $100.00 per well in moving costs. Either natural gas, gasolene or a combination of the two can be used as fuel. When operating on natural gas the fuel consumption of the outfit shown on this page is not more than 4,000 cubic feet per day. The water consumption is small, approximately one-half barrel per day.

The Buffalo Drilling Unit has proved its ability to do the hardest kind of work. It is equal to steam in dropping tools or pulling a bailer. It will drill and spud just as fast as any outfit operated by any other power.

The Buffalo Drilling Unit is built in three models covering a wide range of requirements. Send today for booklet which gives all the facts

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Louden Tool Co.,
Kittanning, Pa.

Look At These

RUST CAUSES LOSSES.

Deterioration of Metal Equipment in Oil Fields Must Be Combatted, Says Engineer.

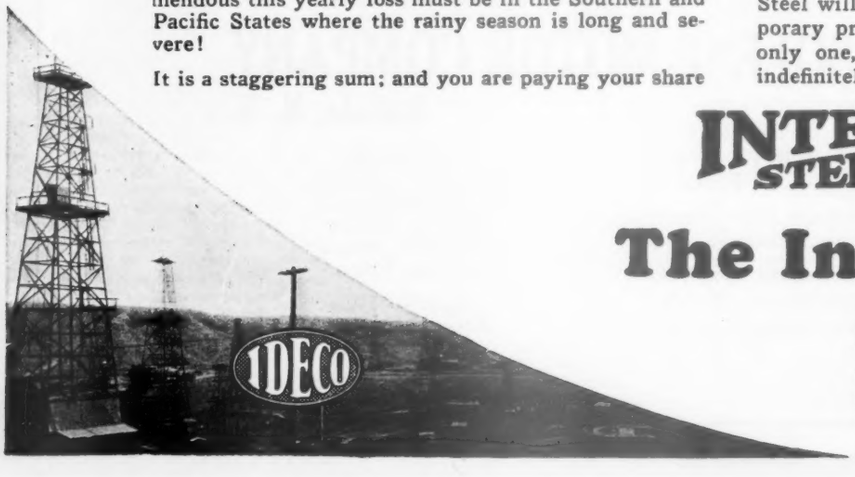
WASHINGTON, MARCH 25.—Deterioration and destruction due to corrosion of metal equipment in oil fields and gas fields are causing such waste of resources and financial loss that operations in many important fields cannot continue on a profitable basis unless these losses can be lessened or eliminated, it was predicted today by R. Van A. Mills, interior department petroleum engineer.

In making public the results of a study of the subject, Mr. Mills said such losses in Kansas alone amount to $3,000,000 a year, and that in Illinois it was feared valuable oil pools must be abandoned prematurely unless preventative measures against corrosion were adopted.

3 Million in Kansas Alone!

In a comparatively dry state Mr. Mills has found a $3,000,000 toll to corrosion *annually*. Think how tremendous this yearly loss must be in the Southern and Pacific States where the rainy season is long and severe!

It is a staggering sum; and you are paying your share of it unless your derricks and equipment are adequately protected against the inroads of corrosion. Steel will rust, wood will rot, and paint is only temporary protection for either. But there is one, and only one, practical construction which resists rust indefinitely—*Galvanized Structural Steel.*



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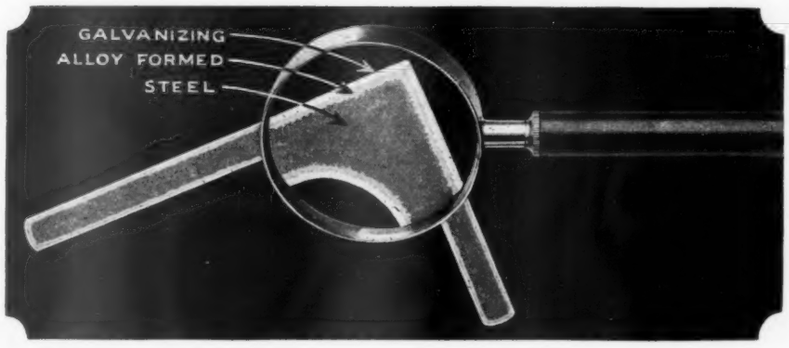

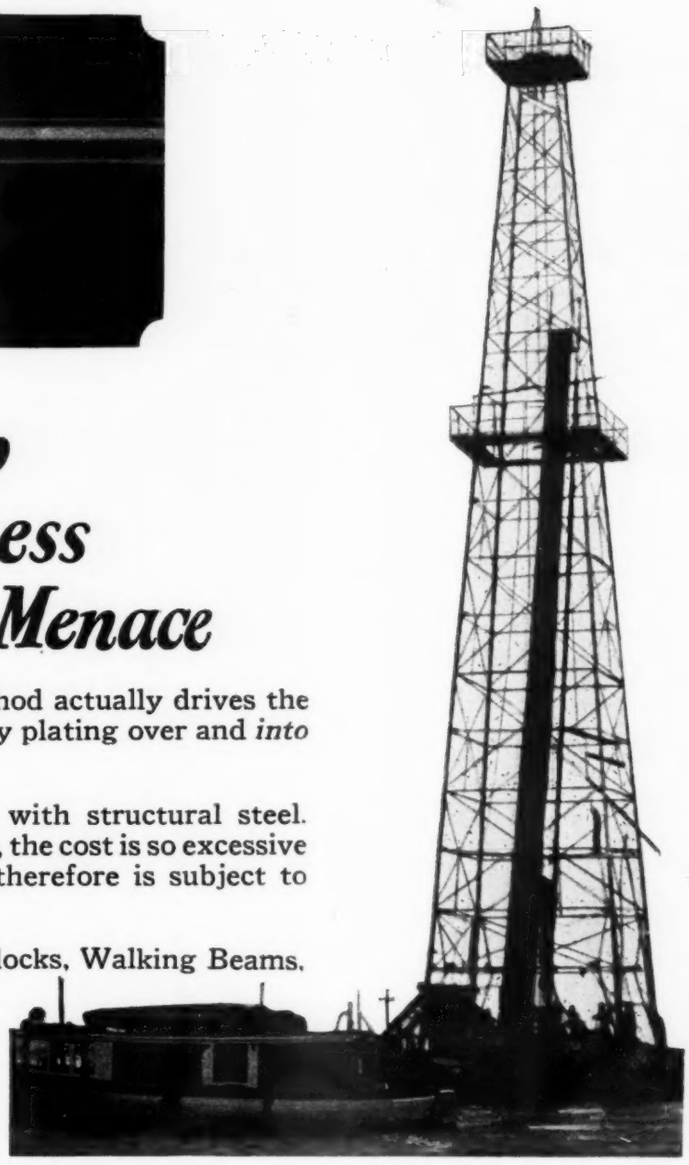

IDECO Hot-Dip Galvanizing Process Eliminates the Rust Menace

Note in the above illustration how this method actually drives the rust-proof zinc *into the metal* to form a heavy plating over and *into* the entire surface.

"IDECO" thorough process is possible only with structural steel. While tubes can be galvanized on the inside, the cost is so excessive as to be commercially impractical. Tubing therefore is subject to attacks of corrosion from the very start.

In International "Ideco" Derricks, Crown Blocks, Walking Beams, Pitmans, Wheels and Portable Houses, you will find every non-friction surface completely protected against the menace of rust. They are always an asset—never a liability.

Ask the nearest "International" office about the long life and economy of Galvanized Structural Steel.

INTERNATIONAL STEEL IDECO DERRICKS (GALVANIZED)

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Ingenious Tools for Fishing Jobs

Modern Devices Make Comparatively Simple Problems Out of Situations That Baffled the Old-Time Driller

By Thomas F. Smiley

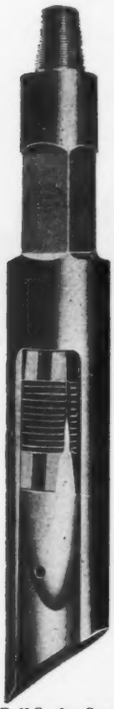
It might easily have been an oil well driller who originated that bromide touching on the maternal relationship of necessity to invention, for modern fishing tools have been born of soul-wrenching experiences on the derrick floor. Incalculable anguish of spirit and percussive profanity might have been saved if the old-time driller had been provided with the facilities for recovering lost tools that now are available.

Wonderful as the accomplishments in this field have been, it is not quite true that there is a tool for every kind of fishing job, for even in this day of breath-taking achievement they still are inventing ingenious implements to meet unforeseen conditions down at the bottom of a hole.

By "they" is meant manufacturing concerns which have grown up with the oil industry, keeping step with its mechanical requirements and devising some new and strange instrument to perform each new and strange task. In this matter of fishing tools inventive genius has had abundant play.

Describing primitive fishing implements employed in the early days of oil, the late Josiah G. Winger, an operator and practical driller in the Pennsylvania fields, wrote:

"The fishing tools of these days were few, crude in design. About all known to the trade then was the 'grab.' This consisted of two circular blades welded on a pin. At the lower end of the blades shoulders of steel were situated to catch under the collar of the tool lost in the well. The 'grab' was held apart, to correspond with the diameter of the bull hole, with a stick of wood placed at the shoulder on the lower end. The stick would be displaced when it came into contact with the tools to be fished out, and the spring of the blade held the shoulders under the collar. When hard jarring was not necessary to loosen the tools the fishing was successful. The valve socket was another fishing tool of the early days that has long since been lost sight of. The mandrel socket was a standby tool. All they are good for is to be placed in the Drake Memorial Museum."



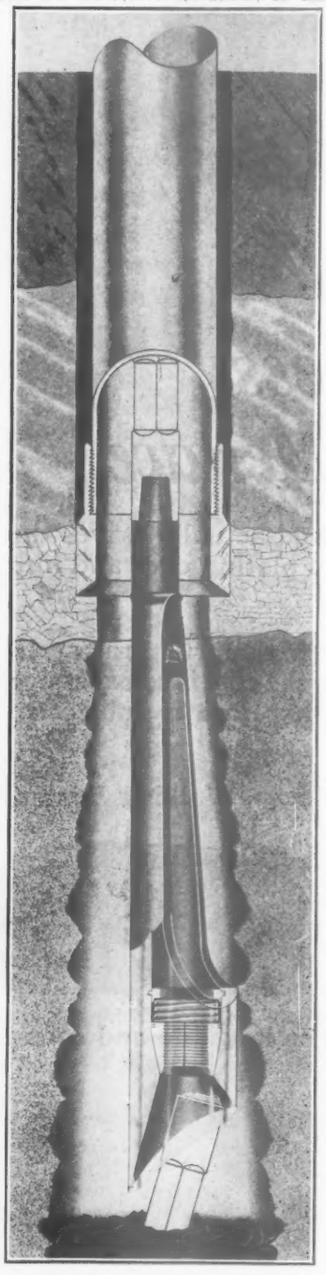
Bell Socket Spear

In marked contrast with these rude utensils are the bewildering array of ingenious devices now kept in stock by manufacturers devoting themselves to the business of making life easier for the oil worker.

Had to Guess

One of the baffling handicaps formerly attending the recovery of tools lost in a well was the fact that it only was possible to guess at the nature of the job involved, for human eyes could not peer down into the hole and discern the position of the bit or other piece of drilling paraphernalia. Then somebody had a bright idea—one of those bright ideas that have lighted the pathway of the oil man with whatever of sunshine it has had since Colonel Drake's exploit.

This particular bright idea might have entered the mind of a man watching his dentist make a set of false teeth for him, for just as the dentist first makes in wax an impression of the subject's jaws to guide his subsequent operations, so the modern oil hole fisherman—that is, if he keeps himself informed as to the latest and most efficient methods — makes an impression in wax for the same purpose.



Eccentric Combination Socket.

But how to make the impression! After all, it wasn't such a difficult thing to do. Here's the recipe. Ingredients: A cylindrical block of wood of a diameter permitting it to move freely through the casing, an oblong sheet of tin, a few big nails and some wax (or tallow). The rectangular sheet of tin is rolled so that it resembles a big tomato can with top and bottom removed. Then one end of the wooden block is inserted several inches into this tin tube and fastened securely. We now have a sort of giant cooky cutter, with several inches of the tin cutting edge extending beyond the wooden cylinder to which it is fastened.

Prior to fashioning the tin into a tube and fixing it in place we drive our big nails part way into the end of the wooden cylinder which later is inserted into the tube. These projecting nail heads afford an anchorage for the wax which we now press into the cooky cutter.

This device, tin end down, is attached to the string of tools and lowered into the hole. When it reaches the tool to be recovered the weight of the string of tools above it presses it so that a matrix is made in the wax. The contrivance then is raised to the surface and with the aid of the impression made in the wax the driller is able to determine the type of fishing tool suited to the job. The wax impression often is taken to the plant of a manufacturer of fishing tools—sometimes sent by express from distant fields—and if no regular tool will meet the particular needs of the case then a special tool is made.

Expert Diagnosticians

Years of specializing in this work have made makers of fishing tools expert diagnosticians. A notable fact is that after an oil producer has had a little experience with the fishing tool manufacturer he finds that he can present his problem in a few words and be understood perfectly. While the writer was chatting with an official of a company manufacturing fishing tools this telegram was handed to him:

"Can you furnish eccentric socket to run in 6⅝, 20 pound, to fish leaning bit with 5½-inch collar?"

Now if that message had been written by some oil worker fearful that his dilemma would not be understood, it would have read about like this:

"We dropped a string of tools to the bottom of a 6⅝-inch hole. It broke off at the wrench square in the box of the drilling stem, leaving in the hole the broken-off stem box and bit. An impression we have made with wax discloses that the lost tools are leaning against the wall of the well. The stem box, without burr, on top, measures about 5½ inches in diameter. Can you furnish a socket to run in the 6⅝-inch 20-pound casing with slips to engage the 5½-inch box collar?"

But the manufactory official did not have the smallest difficulty in interpreting the briefer message. "Here's the way that broken-off stem is standing in the hole," he said as he made a rough pencil sketch. "We can provide the tool that will bring it out of the hole." And he dictated to his stenographer a telegram that brought ease of mind to one more troubled oil field man.

Among the fishing tools now regularly kept in stock one of the most ingenious is a device for removing collapsed casing or casing that has been slivered or split. It is called a bell socket spear. When it is lowered into the hole the bell slips over the top of the casing to be recovered. Inside the bell is a spear which, guided by the bell, enters the mouth of the casing. Wickered slips, sliding on the tapered body of the spear, drop inside the casing and engage it when the tool is lifted, holding it firmly while it is drawn to the surface.

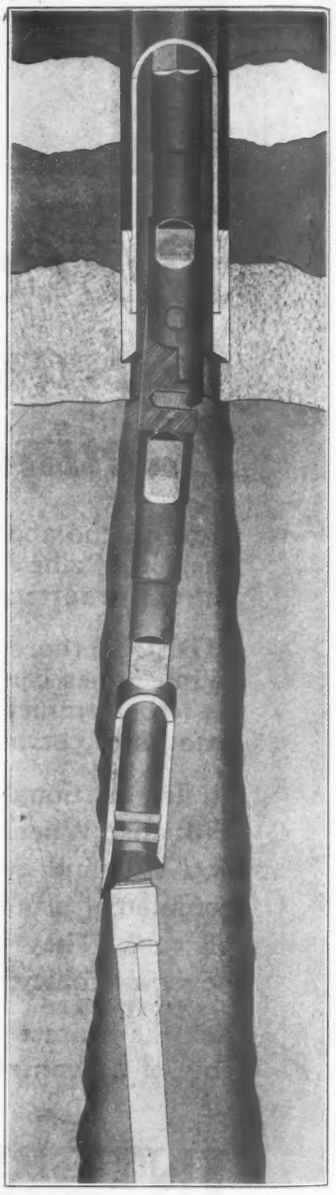
Other devices for recovering casing are the bell socket, trip casing spear, bulldog casing spear, hollow casing spear and casing sliver tool.

As an aid in the removal of especially stubborn casing and in some instances lost tools, certain acids, or combinations of acids, prepared by trained chemists, are employed to soften the limestone formation in which the casing may be frozen.

Acids Remove Stickiness

The acids used for this purpose are hydrochloric, nitric and hydrofluoric. The proportion in which they are combined by skilled chemists determines their efficiency. A combination of these acids is sold by manufacturing chemists, ready for use in the oil field where their employment is found advisable. Their action serves to convert the limestone into an amorphous condition, eliminating its adhesive character and thus facilitating withdrawal of whatever implement may be stuck in the hole. To remove all danger of the acids damaging casing set afterwards, the hole is washed with a soda solution, which neutralizes the action of the acids. If there is plenty of salt

(Continued on Page 94)



Kickoff tool as applied for use.

RUF-NEK

The Pumping Unit for Oil Wells

A LINK-BELT PRODUCT

Our Objective

—to spare not a dollar that would increase strength or improve operation.

—to waste not a dollar that could be saved without impairment.

—to build it to a high standard—not down to a low price—in our own shops, complete.

Match our "pride in design" with "pride of ownership". The Ruf-Nek is built right—that's why it works right. Send for Book 780.

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DISTRIBUTORS
The Parkersburg Rig and Reel Co.
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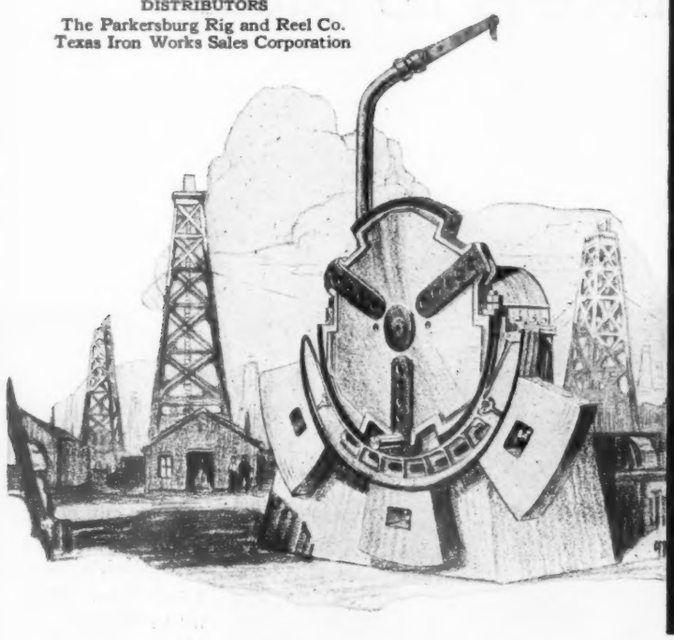
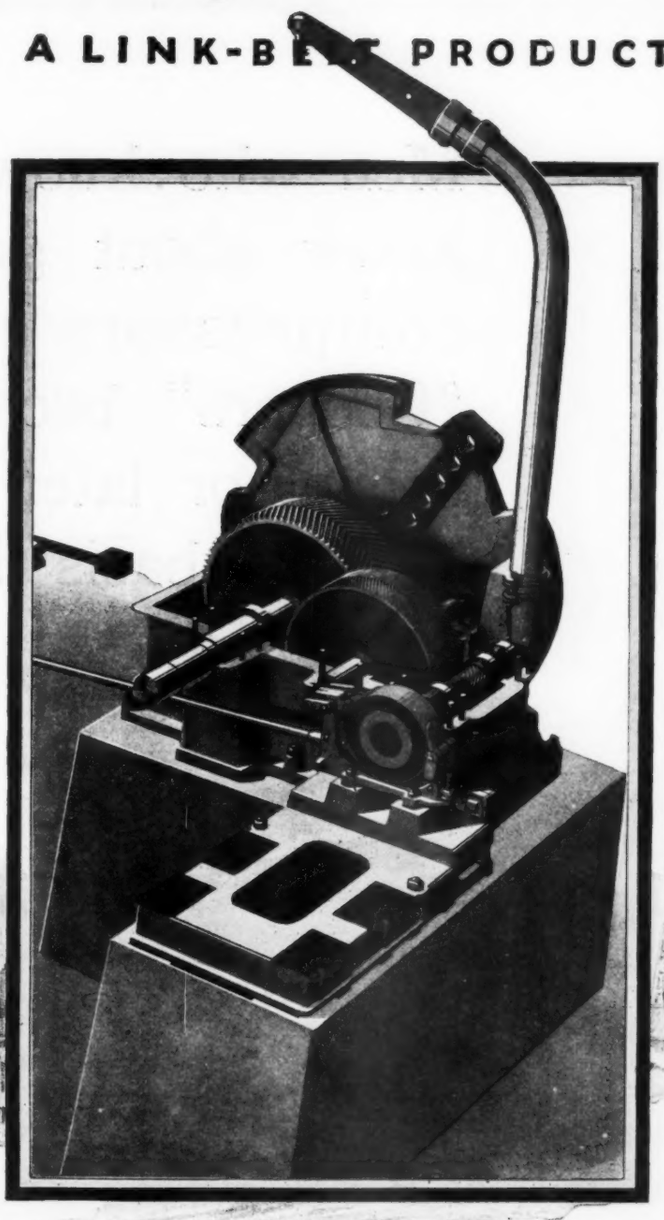
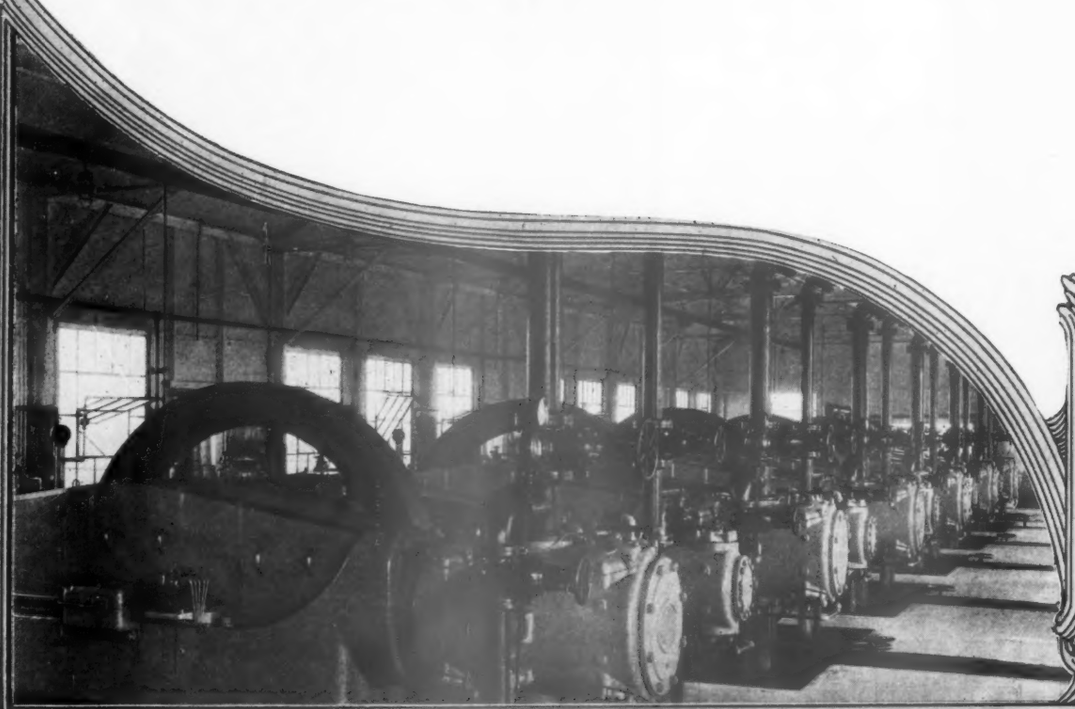




LINK-BELT

COOPER

Men who know all there is to know about gas engines and compressors ultimately choose "Coopers" because they learn sooner or later that on a comparative basis there is no equal.



Photograph shows the compressor end of six Cooper Type 80's in Sinclair's new gasoline plant near Madison, Kansas.

ENGINES

Men who know little or nothing about gas engines and compressors likewise choose "Coopers" because they learn sometime that a company can't stay in the same business for ninety-four years without treating its customers right.

THE C. & G. COOPER COMPANY
HOME OFFICE, MT. VERNON, OHIO

1111 Magnolia Bldg.
Dallas, Texas

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649 South Olive St., Los Angeles, Calif.

The Cooper Type 19 twin cylinder, 200 B.H.P., double-acting engine driving back connected compressors in South Penn Oil Co.'s Yawkey, W. Va., compressor station.

WILDCAT OPERATIONS IN PANHANDLE

(Continued from Page 40)

Stubblefield et al's No. 1 E. Cooper, SW cor. NE, Sec. 5, Blk. 9, I. & G. N. Sur. — Small show oil, 3,019 ft; 1,500 ft. oil in hole; 3,091-3,116 ft; swab. 200 bbls. first 24 hrs; 45 bbls. third day; aver. 35 bbls. past week.

The Texas Company's No. 2 C. R. Garner — Rigging up.
The Texas Company's No. 1 Chas. Kalka — Rig.
The Texas Company's No. 1 J. C. McConnell-B — 50,000,000 ft. gas, 2,637-70 ft; drlg.

R. M. Waggoner's No. 1 J. W. McConnell (was completed for 37,000,000 ft. of gas, 2,255-2,500 ft.) — 150 ft. oil, 3,250-54 ft; S.D.
Willis et al's No. 1 Burnett est., C SE SW NW, Sec. 111, Blk. 5 — S.D., 2,300 ft.

CASTRO COUNTY

Colorado O. & R. Co.'s No. 1 M. Slemmons, SW cor. Sec. 78, Blk. M-17, B. S. & F. Sur. — Rig blown down.
Mystery Oil Co.'s No. 1 J. I. Crum, SE cor. NE, Sec. 333, Blk. M-6, S. K. & K. Sur. — S.D., 510 ft. for casing.

CHILDRESS COUNTY

Continental Oil Co.'s No. 1 B. P. Smith, C NE, Sec. 14, Blk. 9 — Wtr., 2,450 and 2,800 ft; drlg., 3,025 ft.

Hoover & Calloway's No. 1 O. L. Tucker, Sec. 736, Haggard Sur. — Spudded and S.D.
C. L. Sloane et al's No. 1 B. P. Smith, Sur. 49, F. P. Knott lands — Set 6-in. pipe, 2,902 ft; S.D., 3,207 ft. for underreamer.

COTTLE COUNTY

Exploration Co.'s No. 1 Richards — Spudded and S.D.

DALLAM COUNTY

James et al's No. 1 fee, Sec. 9, 47½ — S.D., 2,870 ft; temp. abd.
Wood Bros. et al's No. 1 Capitol Synd., Sec. 19, Blk. 17 — Hole full wtr., 4,007-4,127 ft; S.D.
Marland Oil Co.'s No. 1 A. M. James, C SW W ½, Sec. 21, S. H. McElreath Sur. — S.D., 2,100 ft.
Marland Oil Co. et al's No. 1 Capitol Synd., Sec. 36, Blk. 18, Capitol Synd. land — Drlg., 2,550 ft.

DONLEY COUNTY

A. T. Drlg. Co.'s No. 1 F. E. Harrington, Sec. 39, Blk. 3-C — 1,200 ft. wtr., 3,115-22 ft; show gas, 3,140-60 ft; dry grnt. wash, 3,260-93 ft; S.D., 3,498 ft.

FLOYD COUNTY

Explin. Co.'s No. 1 S. H. Boone, C. C. H. Johnson Sur. — Spudded and S.D.
Explin. Co.'s No. 1 Land & Cattle Co. — S.D., 780 ft. for orders.
Hoffer Oil Corp.'s No. 1 Nelson — Location.

GRAY COUNTY

Amogray Oil Co.'s No. 1 A. Chapman, SW NW SW, Sec. 9, Blk. 26, H. & G. N. Sur. — 2,000,000 ft. gas, 2,150-55 ft; 15,000,000 ft. gas, 2,240 ft; grnt. wash 2,610-15 ft. and 2,623-25 ft; T.D., 2,648 ft; flowed and ft; drlg., 2,696 ft. hard granite wash and lime, flowed and swabbed 100 bbls.

Bay Shore Oil Co.'s No. 1 C. W. Bradford, Sec. 143, Blk. 2-B — Drlg., 2,715 ft.
Camel Oil Co.'s No. 1 Harrah, Sec. 163, Blk. 3, I. & G. N. Sur. — Pay, 3,121-23 ft; increase 3,126 and 3,185 ft; flowed 100 bbls. daily.

Camel Oil Co.'s No. 1 B. E. McKinney — Rig.
Cole O. & G. Co.'s (was Magdalene Oil Co.'s) No. 1 J. E. Williams, Sec. 17, Blk. 1 — S.D., 3,860 ft.
Danciger et al's No. 2 W. Jackson, SW SE NW, Sec. 88, Blk. B-2 — Drlg., 2,220 ft.
Danciger et al's No. 3 W. Jackson, SE SW NW, Sec. 88, Blk. B-2 — Drlg., 2,361 ft.
Danciger et al's No. 4 W. Jackson — Drlg., 1,916 ft.
Danciger et al's No. 1 Jackson, NW cor. Sec. 88, Blk. B-2. — Set 8-in., 2,477 ft; show gas, 2,530-2,625 ft; 10,000,000 ft. gas, 2,682-2,800 ft; flowed 1,775 bbls., 3,040-3,125 ft.

Donley Gray Oil Co.'s No. 1 J. W. Gordon, Sec. 79, Blk 3. — Wtr., 3,380 ft. and 3,430 ft; show oil; S.D., 3,460 ft.

Delaney et al's No. 2 Jackson — Driving 12-in. casing, 650 ft.
Edwards et al's No. 1 E. J. Case, NE cor. Sec. 182, Blk. B-2, H. & G. N. Sur. — 70,000,000 ft. gas, 2,512-2,630 ft; T.D., 2,800 ft; failed to shut off gas.

Empire G. & F. Co.'s No. 1 Sarah George, Sec. 151, Blk. 3, I. & G. N. Sur. — 10,000,000 ft. gas, 3,080-3,130 ft; show oil, 3,130 ft; cmt. 6-in.

Empire G. & F. Co.'s No. 1 J. F. Meers — T.D., 3,172 ft; completed Mar. 20; C.O. to deepen.
Gibson Oil Corp.'s No. 2 J. B. Bowers — Lost hole, 2,910 ft; skidded rig; rigging up.

Gurnsey Oil Co.'s No. 1 B. E. McKinney — Rig.
Lefors Pet. Co.'s No. 1 Leach, Lefors Townsite — 10,000,000 ft. gas, 2,440-50 ft; 70,000,000 ft. gas, 2,625 ft; T.D., 2,650 ft; drlg. by 6 joints 5-in. casing.

H. C. McCauley et al's No. 1 J. Morse, Sec. 2, Blk. 46, H. & G. N. Sur. — Drlg., 760 ft.
Magnolia Pet. Co.'s No. 1 J. Bowers — Rigging up.
Midwest Explin. Co.'s No. 1 J. Bowers — Rigging up.
Navillus Oil Co.'s (was Sullivan et al's) No. 1 fee, NW cor. E ½ SW, Sec. 1, Blk. 1, A. C. H. & B. Sur. — 3,000,000 ft. gas, 2,170-80 ft; 30,000,000 ft. gas, 2,240-90 ft; 15,000,000 ft. gas, 2,370-90 ft; cmt. 8-in., 2,534 ft.

Neudigate et al's No. 1 A. Chapman, NE cor. E ½ SE, Sec. 52, Blk. 25 — 500,000 ft. gas, 2,760-65 ft; rainbow of oil, 2,820-25 ft; salt water; granite wash, 2,827-28 ft; S.D., 2,835 ft.

Operators Oil Co.'s No. 1 Jackson — Drlg., 1,960 ft; U.R. 10-in.
Operators Oil Co.'s No. 2 Bowers, NE cor., Sec. 35, Blk. 3, I. & G. N. Sur. — Show oil, 3,097 and 3,181 ft; drlg., 3,320 ft.

Phillips Pet. Co.'s No. 1 W. Jackson (was Clark et al's No. 2) — Drlg., 590 ft.
Phillips Pet. Co.'s No. 2 W. Jackson (was Clark et al's No. 2) — Drlg., 680 ft.
Phillips Pet. Co.'s No. 3 W. Jackson — Rig.
Phillips Pet. Co.'s No. 1 Jackson-Riley (was Clark et al's No. 1 W. Jackson) — Drlg., 1,975 ft.
Phillips Pet. Co.'s No. 2 Jackson-Riley — Spudded.
Pampa Oil Co.'s No. 1 W. R. Campbell, Sec. 90, Blk. 3 — 700 ft. water, 3,430 ft; S.D.
Purple Sage Oil Co.'s No. 2 E. B. Johnson — Material on ground.
Remo Oil Co.'s No. 1 B. E. McKinney — Location.
Rensoul Pet. Co.'s (was Salisbury & Reynolds') No. 1 M. Huselby, C SE NE NE, Sec. 55, Blk. 25, H. & G. N. Sur. — Flowing 30 bbls. daily; T.D., 2,959 ft; fish, 2 strings tools.

C. B. Shafer's No. 1 G. Cole — S.D. for orders, 3,313 ft.
Shamrock Pet. Co. et al's No. 1 J. B. Back, SE NW SW, Sec. 44, Blk. 25 — Drlg., 2,110 ft.
Skelly Oil Co.'s No. 1 W. Jackson — Drlg., 580 ft.
Skelly Oil Co.'s No. 2 Jackson — Rigging up.
Sullivan et al's No. 1 A. Chapman — Rig on ground.
Sullivan et al's No. 1 A. Chapman-A — Rig; moving in tools.
Staggers Oil Co.'s (was Ruby Oil Co.'s) No. 1 B. F. Tally — T.D., 635 ft; S.D.
The Texas Company's No. 1 J. B. Bowers — Drlg., 240 ft.
The Texas Company's No. 2 J. B. Bowers — Spudding.
The Texas Company's No. 3 J. B. Bowers — New loc.
The Texas Company's No. 1 S. McLarty — Cellar.
The Texas Company's No. 4 G. H. Saunders — Rig.
The Texas Company's No. 1 A. Chapman, Sec. 51, Blk. 25 — Drlg., 2,060 ft.
The Texas Company's No. 1 W. J. Brown — 1,000 ft. wtr., 3,540-45 ft; T.D., 3,630 ft; to plug back.

J. Williams et al's No. 1 C. W. Bradford, Sec. 123, Blk. B-2 — Rig on ground.
Young et al's No. 1 Holmes — Drlg., 3,352 ft; 2,000 ft. oil in hole (was comp. in Oct., 1926, for 200 bbls. at 3,165-80 ft).

HALE COUNTY

Bailey & Young's No. 1 Thomas, Sec. 1, Blk. J.K.L. — S.D., 175 ft.
Donnell Pet. Co.'s No. 2 Mullican, NW cor. Sec. 66, Blk. A-3, I. & S. B. Sur. — Top pay in sandy shale, 405 ft; ⅛ bailer oil and 3 bailers wtr. per day; drlg., 620 ft.

Donnell Pet. Co.'s No. 1 Mullican, C Sec. 21, Blk. B, R. M. Thompson Sur. — 200 ft. fluid in hole from 407-14 ft; S.D.

Explin. Co.'s No. 1 Crawford, C NE, Sec. 17, Blk. C-3, T. T. R. R. Sur. — Spudded and S.D.
Explin. Co.'s No. 1 Goodman — Spudded and S.D.
A. S. Mimm's No. 1 W. A. Ritcher, 700 ft. from east line and 1,200 ft. from south line, Sec. 17, Blk. X, John Glynn Sur. — Drlg., 1,026 ft.
Tolbert & Simms' (was Gouldy & Stone's) No. 1 Kitteral, SE cor. NW, Sec. 65, Blk. A-3, G. C. & S. F. Sur. — Fish., 405 ft.

HALL COUNTY

Briscoe Oil Assn.'s (was Seifert et al's) No. 1 Owens, C NE, Sec. 179, Blk. S-5, Dennison & Pacific Sur. — Spudded and S.D.

HANSFORD COUNTY

Caldwell et al's No. 1 J. Adriance est. — Rigging up.
Oklavania et al's No. 1 Coots, Sec. 13, Blk. 45, H. & T. C. Sur. — S.D., 560 ft.

HOCKLEY COUNTY

World Oil Co.'s No. 1 Ellwood — T.D., 1,180 ft; hole full wtr; run 10-in.

HARTLEY COUNTY

Deep Rock Oil Co.'s No. 1 Lymann & Balfour, Sec. 9, Blk. 2 — Show gas and rainbow of oil, 2,560 ft; top lime, 2,810 ft; 24,000,000 ft. gas, 3,100-3,220 ft; show oil, 3,648-50 ft; 3,653-75 ft. 150 ft. salt water; set 6-in. 3,642 ft; S.D., 4,038 ft.
Eslick et al's No. 1 J. R. Irving, Sec. 13, Blk. 13 — Topped grantie wash, 3,103 ft; show oil, 3,226 ft; hole full wtr., 3,745-55 ft; S.D., 3,920 ft.

HEMPHILL COUNTY

Hoover et al's No. 1 Schaller est., Sec. 4 — Spudded and S. D.
Hoover et al's No. 1 fee, J. S. Hood Sur. — Fish. liner, 4,771 ft; bailing.

HUTCHINSON COUNTY

R. G. Barnum et al's No. 1 Garland Sanford, Sec. 78, Blk. 46 — Rig.
Beam et al's No. 1 Cockrell, Sec. 3, Blk. 23 — S.D., 405 ft. for orders.
Big Coach Oil Co.'s No. 1 Dunnaway, Sec. 5, Blk. Y — S.D., 750 ft.
Conklin et al's No. 1 Johnson, Sec. 1, Blk. X03, H. & O. B. Sur. — S.D., 600 ft.
Golden Eagle Oil Corp.'s No. 1 J. Q. Bost, Sec. 6, Blk. Y-3 — Spudded and S.D.
McMan O. & G. Co.'s No. 1 Albert Yake — Drlg., 600 ft.
Phillips Pet. Co.'s No. 12 Elva-Whittenburg, E. Tomlinson Sur. — S.D. for orders, 4,445 ft.
Prairie O. & G. Co. and Vacuum Oil Co.'s No. 2 Cal Merchant — Rigging up.
Skyrocket Oil Co.'s No. 1 Mrs. R. A. Jameson — T.D., 2,508 ft; U.R. 6-in.
Sweeney et al's No. 1 Johnson, Sec. 33, Blk. Y — S.D., 1,720 ft.
The Texas Company's No. 1 Ellis Cockrell, Sec. 1, Blk. Y — Drlg., 4,510 ft.
The Texas Company's No. 1 Cockrell-B — Drlg., 500 ft.

KING COUNTY

Humble O. & R. Co.'s No. 1 Pitchfork, Sec. 171, Blk. A-96, John H. Gibson Sur. — Drlg., 2,010 ft.
Midwest's No. 1 Patton — S.D., 3,475 ft.
J. L. Pattison's No. 1 Patton — Slight show gas, 2,115-30 ft; S.D., 2,820 ft.

LAMB COUNTY

Dan Freel et al's No. 1 Ellwood, CWL, Sec. 9, Blk. T, T. A. Thompson Sur. — Location.
Tolbert & Simms' No. 1 Elwood, NE SW SW, Sec. 14, Blk. B., R. M. Thompson Sur. — S.D., 712 ft.

LIPSCOMB COUNTY

Cal-Tex's No. 1 Bradford, C NE NE, Sec. 899, Blk. 43, H. & T. C. Sur. — Spudded and S.D.
Camp Creek Oil Co.'s No. 1 Mrs. H. D. May, Sec. 612, Blk. 43 — S.D., 1,400 ft.
McCorkle's No. 1 A. Barton, NE cor. SW SE, Sec. 504, Blk. 43, H. & T. C. Sur. — Water in lime at 4,126-40 ft; 6 in. set, 4,155 ft; drlg., 4,320 ft.

Ozark Drlg. Co.'s No. 1 Frass, NE SE, Sec. 106, Blk. 10, H. & T. C. Sur. — Rig on ground.
Smith, Kinsley & Ruby's No. 1 C. W. Jones, NE cor. SW, Sec. 100, Blk. 43 — Show oil, 3,520 ft; salt water at 3,900 ft; S.D.

LUBBOCK COUNTY

Center Oil Co.'s No. 1 Bowles ranch — Small show oil, 1,133-40 ft., in sand; drlg., 1,250 ft.

MOORE COUNTY

A. O. Duggan's (was Shadler Bros.') No. 1 John Lowery, Sec. 237, Blk. 44 — Topped lime, 2,680 ft; set 8-in. at 2,770 ft; 4,000,000 ft. of gas, 2,980-3,020 ft; 15,000,000 ft. gas 3,100-50 ft; (actual gauge); S.D. 3,605 ft; very slight show oil in lime; S.D., 3,652.
Prairie and Shamrock's No. 2 Gober, Sec. 16, Blk. M-21 — Fish. lugs, 2,520 ft.
Skelly Oil Co.'s No. 1 Armstrong & Byrd — T.D., 3,294 ft. hole full wtr., 3,292-94 ft; will plug back to pay, 3,179-3,213 ft; averaged 60 bbls. daily past week.

MOTLEY COUNTY

Explin. Co.'s No. 1 Burleson — Spudded and S.D.
Explin. Co.'s No. 1 Tillson — S.D., 750 ft. for repairs.
Explin. Co.'s No. 1 Matador Land & Cattle Co., C SW, Sec. 37, John Gibson Sur. — Drlg., 730 ft.
Wheeler et al's No. 1 C. D. Bird, C NE, Sec. 4, Blk. S, Stephens Sur. — Spudded and S.D.

OLDHAM COUNTY

Prairie O. & G. Co.'s No. 1 Landegrin, SE cor. NE SW, Sec. 46, League 310, Capital land — 1,900 ft. wtr., 4,085-93 ft; 1 bailer wtr. per hr. and light scum oil. 4,527 ft. (steel line meas.) cmt. 6-in., 4,442 ft; 2,000 ft. salt wtr., 4,850-56 ft; run. 5-in., 4,895 ft.

POTTER COUNTY

Amarillo Oil Co.'s No. 1-B Masterson, Sec. 43, Blk. G-M-3, G. & M. Sur. — 500,000 ft. gas, 1,750 ft; 50,000,000 ft. gas, 2,030-2,140 ft; drlg., 2,320 ft.

ROBERTS COUNTY

Big Bend Oil Co.'s No. 1 Mrs. H. Ledrick & Sons, Sec. 7, Blk. 5-A — Show gas, 4,990 ft; show oil, 4,992 ft; cas. set, 4,992 ft; drlg. shale, 5,110 ft.

SHERMAN COUNTY

Gibson Oil Co.'s No. 1 Bivins, Sec. 35, Blk. 3-B — 100,000 ft. gas, 2,016-26 ft; drlg., 2,980 ft; show gas.

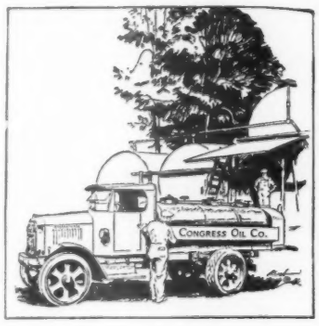
Phillips Pet. Co. and Prairie O. & G. Co.'s No. 1 Price & Fuqua, C NE, Sec. 33, Blk. 2-B, G. H. & H. Sur. — 100,000 ft. gas, 2,105-10 ft; drlg., 2,980 ft.

WHEELER COUNTY

E. L. Arnold's No. 1 M. J. Williams — Show gas, 1,644 ft; T.D., 1,790 ft; S.D.
Byrens et al's No. 1 Johnson, SW cor. NE, Sec. 88, Blk. A-5, H. & G. N. Sur. — T.D., 400 ft; S.D. for 10-in.
Foster et al's No. 1 S. H. McDonald, SE cor. NW SW, J. N. Lindsay Sur. — Spudded; repaired rig.
Hatcher et al's No. 1 J. Hatcher, C NE SW, Sec. 80, Blk. 23, H. & G. N. Sur. — T.D., 1,460 ft; 1,000,000 ft. gas; cmt. 6-in.
Piney O. & G. Co.'s No. 1 W. S. Walker, Sec. 44, Blk. 24, H. & G. N. Sur. — T.D., 2,280 ft; show gas; lost hole; skidding rig 50 ft. south.

Rook & Angus' No. 1 Smock (Linkey) C SE SE Sec. 5, Blk. 24, H. & G. N. Sur. — New loc.; rigging up.
Smith Brady et al's No. 1 P. J. Sorenson, Sec. 53, Blk. A-4 — S.D., 2,120 ft. for orders.
The Texas Company's No. 1 Morgan, Sec. 92, Blk. 17 — 21,000,000 ft. gas, 1,850 ft. drlg., 2,004 ft.
The Texas Company's No. 3 Morgan — New loc.

The International line includes the Special Delivery for loads up to ¾-ton; 4 and 6-cylinder Speed Trucks of 1¼, 1½, and 2-ton sizes; Heavy-Duty Trucks ranging from 2½ to 5-ton sizes; Motor Coaches; and McCormick-Deering Industrial Tractors.



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MAKE your own comparisons.

Compare an International Truck, part for part, design and construction, with any other truck and form your own opinion. The more you know about truck construction the more you'll think of the International Heavy-Duty Truck. And the closer you watch your costs the more their low cost per ton-mile will please you.

Special International engineering features make this truck a mechanical masterpiece. More than that—they give it the stamina to stand up on any job. Engine, frame, springs, clutch, transmission, brakes, chain or gear drive—every mechanical unit is built with a liberal factor of safety.

The International Heavy-Duty line ranges in capacity from 2½-ton up, and practically any oil field or delivery requirement can be met with a chain drive or double-reduction drive—whichever meets the owner's requirements best.

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Mayo Bldg., Tulsa, Okla.

OKLAHOMA FIELDS

(Continued from Page 44)

Indian Territory Illuminating Oil Co.'s No. 380, NE cor. NW NE Section 17-27-11, was completed for 1,000,000 feet of gas in sand at 1,918-28 feet. Devonian Oil Co.'s No. 2, SW cor. NE NE Section 33-21-10, made 30 bbls. from sand at 1,486-1,516 feet. Sand Springs Home's No. 107, SW cor. NW Section 1-20-10, is dry and abandoned at 2,265 feet.

Payne County

Olean Petroleum Co. made location for No. 1 Peters, SE cor. NW SW Section 24-18-5. T. J. Hughes' No. 1 Strip, SW cor. NW Section 10-18-5, has been completed for 9,000,000 feet of gas in sand at 2,139-49 feet.

Pawnee County

Miller & Mooney's No. 1 Rush, NW cor. Section 21-20-10, is spudding. Privett Drilling Co.'s No. 2 Kline, NW cor. NE SE Section 10-20-6, was shot with 10 quarts and completed for 60 bbls. in sand at 3,114-61 feet.

Pontotoc County

Shaffer Oil & Refining Co.'s No. 3 Yoakum, SW cor. NW NW Section 16-5-8, is dry and abandoned at 1,112 feet. American Oil & Gas Co.'s No. 1-A Sales, NE cor. SE NW Section 10-4-6, has been abandoned at 1,200 feet.

Pottawatomie County

Magnolia Petroleum Co. is building the rig for No. 1 J. Crawford, NE cor. SE SW Section 25-7-3. The rig is going up for No. 2 Bullock, NW cor. SE SE Section 18-7-5.

The Texas Company's No. 2 Roger, NE cor. SE Section 5-9-5, Earlsboro Pool, was completed in the Wilcox sand at 4,395-98 feet, plugged back to 4,225 feet and made 30 bbls. Roxana Petroleum Corp.'s No. 1 Ricker, NW cor. SW Section 22-7-3, found water in the Wilcox sand at 5,085-87 feet and has been abandoned. Independent Oil & Gas Co., Darby Petroleum Co. and Gypsy Oil Co.'s No. 1 Hambly, SW cor. NW NW Section 14-7-5, flowed 172 bbls. from the Hunton lime at 3,751-3,877 feet. Magnolia Petroleum Co.'s No. 1 Robins, NE cor. SE SE Section 15-7-4, Pearson area, was completed for 314 bbls. in the Hunton lime at 3,685-3,720 feet.

Seminole County

Mid-Continent Oil Corp.'s No. 4 Saloche, SE cor. SW SW Section 33-10-6, Searight Pool, is a rig under construction. Gypsy Oil Co. made location for No. 2 Solomon, NE cor. SE NE Section 21-10-7, east of the Searight Pool. Location was made for No. 1 Sumpsey, NW cor. SW Section 22-10-7. T. B. Slick has the rig on the ground for No. 1 Harris, SW cor. NW Section 22-10-7. Mid-Continent Petroleum Corp. is building the rig for No. 2 Bowlegs, SE cor. NE SW Section 22-8-6, Bowlegs Pool. McCulloch Oil Co. made location for No. 1 Powell, NW cor. Section 11-6-5.

Shaffer Oil & Refining Co.'s No. 4 Clark, SW cor. SE Section 1-9-5, Earlsboro Pool, was completed for 97 bbls. in the Wilcox sand at 4,484-87 feet. Barnsdall Oil Co.'s No. 3 Sullivan-Harjo, NW cor. NE SW Section 10-9-5, is dry and abandoned at 4,479 feet in the Wilcox sand topped at 4,411 feet. The Texas Company's No. 1 Wilmott, NW cor. NE SE, Section 10-9-5, an old well deepened, was drilled to the Wilcox sand at 4,343-55 feet and made 235 bbls. Gypsy Oil Co.'s No. 9 B. Carter, SE cor. NE NW Section 11-9-5, found the Wilcox sand at 4,418 feet, drilled in to 4,422 feet and plugged back 2 feet where it made 42 bbls. on the pump. No. 10 B. Carter, NE cor. NW Section 11-9-5, swabbed 772 bbls. from the Wilcox sand at 4,440-48 feet. No. 4 Noble, NE cor. SW NE Section 12-9-5, was completed for 1,492 bbls. in the Wilcox sand at 4,252-63 feet. Amerada Petroleum Corp.'s No. 5 Anderson, NE cor. NW NW Section 15-9-5, has been abandoned at 4,626 feet after losing the hole. Empire Gas & Fuel Co.'s No. 3 Gross, SW cor. NW SE Section 25-9-6, Seminole City Pool, had an initial production of 42 bbls. from the Sylvan shale at 4,023-50 feet after plugging back from the Wilcox sand. No. 5 Gross, NE cor. NW SE Section 25-9-6, entered the Wilcox sand at 4,375 feet, drilled to 4,393 feet and was abandoned. Independent Oil & Gas Co.'s No. 4 Harjo, NE cor. SE SW Section 25-9-6, had an initial production of 400 bbls. from the Wilcox sand at 4,443-66 feet. Mid-Continent Petroleum Corp.'s No. 3 Cully, NE cor. SW Section 7-9-8, is pumping 2½ bbls. from sand at 3,300-20 feet.

Sinclair Oil & Gas Co.'s No. 1 Jacksey, NW cor. NE Section 3-8-6, Bowlegs Pool, is a dry hole at 4,468 feet in the second Wilcox. Carter Oil Co.'s No. 1 Dees, SE cor. SW NE, Section 11-8-6, has been abandoned at 4,213 feet in the Wilcox sand found at 4,208 feet. No. 2 Jones, SE cor. Section 11-8-6, made 2,730 bbls. from the Wilcox sand at 4,105-25 feet. No. 3 Jones, SW cor. SE SE Section 11-8-6, was completed for 870 bbls. in the Wilcox sand at 4,344-52 feet. Gypsy Oil Co.'s No. 1 Jones, SW cor. SE NE Section 11-8-6, came in for 542 bbls. in the Wilcox sand at 4,239-44 feet. Magnolia Petroleum Co.'s No. 1 Cordell, SW cor. SE NW Section 11-8-6, is dry and abandoned in the Wilcox sand at 4,690-4,713 feet. Carter Oil Co. abandoned No. 8 Harjoche, NE cor. NW NW Section 14-8-6, after drilling it to 4,175 feet. The Texas Company's No. 15 Reed, NW cor. NE NE Section 14-8-6, flowed 1,440 bbls. from the Wilcox sand at 4,113-36 feet. Indian Territory Illuminating Oil Co.'s No. 6 Goforth, NW cor. NE Section 15-8-6, found the Wilcox sand at 4,600 feet, drilled in to 4,648 feet and after plugging back to 4,629 feet made 80 bbls. on the swab. No. 4 Billington, SE cor. NE NW Section 22-8-6, made 96 bbls. from the Wilcox sand at 4,579-86 feet. Carter Oil Co.'s No. 1 Burden, NW cor. NE SW Section 23-8-6, was completed for 150 bbls. in the Wilcox sand 4,548-58 feet.

Indian Territory Illuminating Oil Co.'s No. 3 Dungan, SW cor. SE Section 35-8-6, Little River Pool, swabbed 886 bbls. from the Wilcox sand at 4,115-23 feet. The Prairie Oil & Gas Co.'s No. 8 Stidham "A," SE cor. NW NE Section 11-9-5, came in for 150 bbls. from the Wilcox sand at 4,455-62 feet. No. 10 Stidham "B," NE cor. SW NE NE Section 11-9-5, was completed for 100 bbls. in the Wilcox sand at 4,322-38 feet. No. 11 Stidham "A," NW cor. SW NE Section 11-9-5, had the Wilcox sand at 4,308-20 feet and made 270 bbls. No. 12 Stidham "A," SW cor. NW NE Section 11-9-5, made 500 bbls. from the Wilcox sand at 4,333-53 feet. No. 13 Stidham "A," NW cor. NW NE Section 11-9-5, is producing 470 bbls. from the Wilcox sand at 4,317-29 feet. No. 1 Bruner, SE cor. SE NW Section 17-10-6, has been abandoned at 4,570 feet in Sylvan shale.

Stephens County

Humble Oil & Refining Co. is building the rig for No. 1 Perkins, SE cor. SW SE Section 12-1s-4w. Cameron Refining Co.'s No. 2 Brittain, NE cor. SW SE Section 12-1s-4w, was completed for 230 bbls. in a series of sands at 2,696-2,868 feet, total depth 2,959 feet. The Prairie Oil & Gas Co.'s No. 1 Gray, NE cor. SE NE Section 6-1-4w, has been abandoned at 2,919 feet.

Tulsa County

Sheridan Oil Co. has the rig up for No. 2 Russell, NE cor. SW NE Section 27-19-11. Posey Short's No. 2 Clinton, NW cor. NE SW Section 23-19-12, is spudding. Minshall Oil & Gas Co. has the machine on the ground for No. 3 Bruner, NW cor. NE NE Section 9-18-13. A. J. Spears' No. 7 Glenn, SE cor. NE NW Section 11-17-12, is spudding.

Holmes and others' No. 2 Bemore, NE cor. NW NE Section 18-19-10, was completed for 20 bbls. in the Red Fork sand at 2,046-76 feet. A. J. Spears' No. 6 Glenn, CEL NE NW Section 11-17-12, made 35 bbls. after it was shot in the Taneha Sand at 1,695-1,743 feet. Suppes and others' No. 4 Smith, NW cor. SW Section 5-17-13, is dry and abandoned at 1,940 feet. S. W. Anthony's No. 7 Sanderson, CWL SE NW Section 3-16-12, is dry and abandoned at 2,865 feet.

Okmulgee County

Kirkland & Son's No. 7 Bell, NW cor. SE NW Section 17-15-13, is drilling at 150 feet. T. H. McBrayer and others moved a machine out to drill No. 1

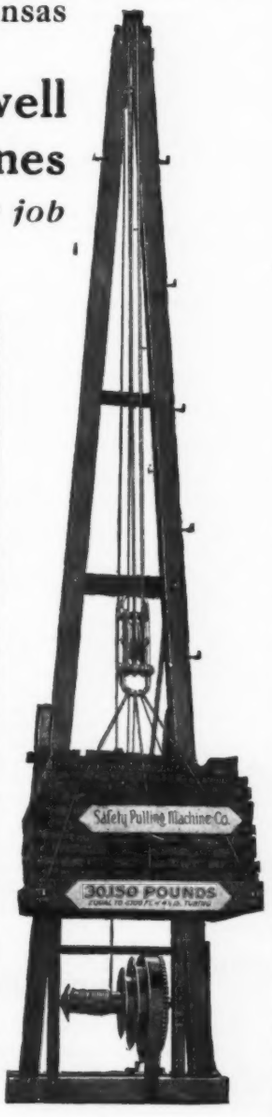
ECLIPSE DEEPWELL PULLING MACHINE

Wherever there is tubing to be pulled—

In the East, Pennsylvania, Ohio, Indiana, Illinois—California in the West, Montana, New Mexico. In the Mid-Continent all over Oklahoma and Texas and in Arkansas and Louisiana

Eclipse Deepwell Pulling Machines

are in use. On the job every day.



Specifications

DEEPWELL

Eclipse Deepwell up to 8000 ft. 2" Tubing, Weight 3645

Mast 8x10x36 ft., Douglass Fir A-Style Two Wheel Truck, two 16" Bronze bearing crown pulleys, 2⅛ Steel Pin mounted in malleable boxings. Large supporting plate 16" dia. between crown pulleys, eliminating any chance of bending pin.

Reel or Drum; 32 lb. 8¼ casing filled with concrete for winding drum, differentials banded with 3/16 band iron, brake surface 6"x40", choke brake style same as Star drilling machine.

The whole reel assembly is mounted on 2¾ square steel shaft extending clear through reel, secured by three heavy castings.

For Sale By All Supply Companies

Manufactured By—

SAFETY PULLING MACHINE CO.

INDEPENDENCE, KANSAS

Tucker, SE cor. SW NW Section 9-15-14.

G. T. Roberts' No. 4 Belisle, CNL SE SE Section 16-15-11, was completed for 30 bbls. in the Taneha sand at 2,097-2,128 feet. J. J. Lee & Sons' No. 1 Long, CEL NW NE Section 17-15-12, is dry and abandoned at 2,275 feet. Sperry & Son's No. 6 Lacey, CNL SW SW Section 7-14-13, has been abandoned at 2,219 feet. Denver Producing & Refining Co.'s No. 11 Thomas, CWL NW SE Section 32-13-11, has been shut in for 5,000,000 feet of gas in sand at 1,970-2,040 feet. A. G. Hazlett's No. 4 Jones, CWL NW NW Section 33-13-13, is dry and abandoned at 2,935 feet. Independent Oil & Gas Co.'s No. 4 Wilson, SE cor. NW SE Section 7-12-12, was completed for 1,000,000 feet of gas in sand at 1,988-2,000 feet. B. Morgan's No. 9 Kanard, NW cor. SW NE ection 13-11-13, was completed for 500,000 feet of gas in sand at 2,036-38 feet.

Cad'o County

Magnolia Petroleum Co. made location for No. 1 No Name, W cor. Section 28-10-12w.

Cotton County

Howe & Leeper are moving the tools in for No. 2 Lindsey, NW cor. SE SW Section 27-1s-10w. Magnolia Petroleum Co. made location for No. 1 Pex-See, NE cor. SE Section 30-1s-9w.

Grady County

Oklahoma Natural Gas Corp. made location for No. 4 Smith, SW cor. Section 26-5-8w. Oklahoma Gas Utilities Co.'s No. 1 K. Farwell, SE cor. Section 23-5-8w, has been completed for 15,000,000 feet of gas in sand at 2,123-2,408 feet. Watchorn Oil & Gas Co.'s No. 1 Woods, SW cor. Section 12-4-8w, set the 8-inch casing at 2,217 feet, drilled to 2,619 feet and made 7,000,000 feet of gas. The Texas Company's No. 1 Glover, NE cor. NW NW Section 13-4-8w, set the 8-inch pipe at 2,276 feet, drilled to 2,425 feet and gauged 54,000,000 feet of gas. Carter Oil Co.'s No. 1 Byrd, SE cor. NE NW Section 8-3-5w, has been abandoned at 2,535 feet. No. 3 Scharmack, NW cor. SW SW Section 35-3-5w, is dry and abandoned at 2,718 feet.

Muskogee County

W. J. Metzger and others moved a machine out for No. 1 Townlot, NW cor. NE Section 3-14-18. J. R. Graves and others have the rig up for No. 1-A Flowers, SE cor. NW Section 5-13-16. L. T. Haynie's No. 1 Lindner, C SE Section 33-13-18, is rigging up.

Stephens County

Carter Oil Co. has built the rig for No. 4 Iserwood, SW cor. SE SE Section 11-2-5w. Beard & Cobb's No. 1 Brigham, SW cor. Section 30-1s-8w, is to be deepened below 1,998 feet, standard tools now being rigged up. Owen & Wood's No. 6 Massey, CSL SE NW Section 12-2s-8w, is cementing surface pipe.

Owen & Wood's No. 4 Massey, SW cor. SE NW Section 12-2s-8w, is dry and abandoned at 2,146 feet.

Wagoner County

C. M. Bradley's No. 1 Wilson, SW cor. NE NE Section 11-18-17 is drilling at 20 feet. W. O. Dickinson's No. 7 Kelly, SE cor. NW NE Section 6-17-15, has been abandoned at 1,383 feet.

INGENIOUS TOOLS FOR FISHING JOBS

(Continued from Page 86)

water in the hole this soda solution is unnecessary, since the salt itself serves as a neutralizer.

Eating away of frozen casing or tools by use of the same acids in cases where removal proves impossible is being resorted to experimentally. A neutralizing wash must be employed afterward of course to prevent injury of casing placed in the hole later. This method of "melting away" fishing jobs, which should be performed under expert supervision only, is of too recent origin to say whether or not it is scientifically sound.

Another tool which has extricated many a driller from deep trouble is the eccentric combination socket designed for recovering bits and other tools lost in cavey holes. When the socket has passed out of the casing and entered the enlarged hole below, the tools naturally swing to the center of the hole, permitting the long, tapered bowl of the eccentric combination socket to extend far out into the enlarged caved hole. The bowl guides the bit or other lost tool into a slip seat inside, causing the slips to expand and close over the collar. Tension on the slips is gained by a spiral steel spring, compressed by a steel retaining ring with outside dovetail construction fitted on the top of the spring. By a slight turn of the retaining ring it fits the corresponding dovetail in the bowl of the socket, effecting an interlocking joint which holds the working parts in their proper position.

The kickoff tool is used in connection with others to straighten up and fish out tools that have fallen over to the side of the wall in caved holes.

The casing tool coupler socket is designed to fish out casing tool couplers with rope socket necks or other similar lost tools. It saves cutting the wire drilling line or stripping jobs. The casing tool coupler, when used in connection with an ordinary trip casing spear, is designed to connect and withdraw casing that has parted. It can be used to lock tools in the casing, after which the casing can be pulled, bringing the tools with it.

The jar rein socket is for recovering jars that have broken, leaving the lower half of broken jar reins in the hole.

The casing collar ripper rips the threaded casing in casing collars or couplings. It makes it unnecessary to rip an entire joint of casing.

The eccentric grab for removing underreamer lugs or cutters, broken-off bit collars and other small tools, is the familiar and modernized form of the old-time grab which often was made by the nearest blacksmith.

WELL LENDS INTEREST TO SALE OF LEASES

(Continued from Page 32)

lying in Osage County snow it has yielded 121,590,464 bbls. of high-grade crude oil from May, 1920, to November 1, 1927. There were 1,820 wells producing at the close of the above compilation and as these wells are draining approximately 18,200 acres it may be said that the recovery has been 6,676 bbls. per acre. The field was opened in May, 1920, by the Marland Oil Co. in the northeast quarter of Section 36-27-5. The original lease is now producing 195 bbls. per day from 12 wells.

Since the last previous sale, March 28 of this year, the production of the Osage County side of the field has gradually dropped off from 39,000 bbls. to 29,000 bbls. The completion of the big well of Oliphant and others early this month increased the production, which for the week ending November 5 was 32,265 bbls. On Monday the report came in that deeper drilling had increased the production of the Oliphant well to 200 bbls. per hour, which may give the field an appreciable increase for the week ending November 12. The production of the entire Burbank Field, including the South Burbank Pool and the Kay County extension, averaged 38,840 bbls. last week. Late in March it was making 46,566 bbls. per day from a grand total of 2,001 wells. This indicates a decline of 16.5 per cent in production in seven months with an increase of 28 producing wells. Late in March, Burbank wells—including the whole field—averaged 23.2 bbls. per well. At this writing the wells average 19 bbls. per well. Burbank wells are producing all the way from 2 bbls. a day up to nearly 5,000 bbls. a day of the Oliphant well, recently completed.

Following are the tracts to be offered at the next sale:

East of Range 7

Tr. No.	Description	Acreage
1	NW 3-21-11	160
2	NE 4-21-11	160
3	NE 15-21-11	160
4	SE 15-21-11	160
5	SW 16-21-11	160
6	SW 28-21-11	160
7	NW 33-21-11	160
8	SE 22-22-11	160
9	SE 24-22-11	160
10	SW 28-22-11	160
11	NE 34-22-11	160
12	NW 34-22-11	160
	NE 22-27-11	160
14	NW 13-21-10	160
15	SW 25-22-10	160
16	NW 15-23-10	160
17	SE 15-23-10	160
18	SW 23-23-10	160
19	NW 29-24-10	160
20	SW 29-24-10	160
21	SE 34-25-10	160
22	SW 34-25-10	160
23	SW 4-21-9	160
24	SE 5-21-9	160
25	SE 7-21-9	160
26	SW 7-21-9	160
27	NE 8-21-9	160
28	NW 9-21-9	160
29	NE 28-21-9	160
30	NW 28-21-9	160
31	NE 35-21-9	160
32	NW 25-22-9	160
33	NE 26-22-9	160
34	SW 12-23-9	160
35	NW 15-23-9	160
36	SE 26-23-9	160
37	SW 26-23-9	160
38	SW 30-23-9	160
39	NE 32-23-9	160
40	SE 9-25-9	160
41	SE 34-25-9	160
42	SE 8-26-9	160
43	SW 8-26-9	160
44	SW 16-26-9	160
45	NW 21-26-9	160
46	SE 22-26-9	160
47	SW 23-26-9	160
48	SW 26-26-9	160
49	SW 27-26-9	160
50	NE 28-26-9	160
51	SW 11-21-8	160
52	NW 14-21-8	160
53	NE 17-22-8	160
54	NW 17-22-8	160
55	SW 26-22-8	160
56	NW 35-22-8	160
57	NE 19-23-8	160
58	SE 19-23-8	160
59	NW 22-23-8	160
60	SW 22-23-8	160
61	NW 1-24-8	160
62	SW 1-24-8	160
63	NE 9-24-8	160
64	NW 9-24-8	160
65	NE 30-24-8	160
66	SE 14-25-8	160
67	NE 17-25-8	160
68	NW 17-25-8	160
69	SW 23-25-8	160
	Acreage east side	11,040

West of Range 8

Tr. No.	Description	Acreage
70	NE 2-25-7	160
71	NW 2-25-7	160
72	SE 2-25-7	160
73	SW 2-25-7	160
74	NE 4-26-7	160
75	NW 4-26-7	160
76	SE 4-26-7	160
77	SW 4-26-7	160
78	SE 12-26-7	160
79	NE 13-26-7	160
80	NW 13-26-7	160
81	NE 15-26-7	160
82	NW 15-26-7	160
83	SE 15-26-7	160
84	NE 10-27-7	160
85	NW 10-27-7	160
86	SE 10-27-7	160
87	SW 10-27-7	160
88	NW 20-27-7	160
89	SW 20-27-7	160
90	NE 26-27-7	160
91	NW 26-27-7	160
92	SE 26-27-7	160
93	SW 26-27-7	160
94	NE 30-27-7	160
95	NW 30-27-7	160
96	NE 7-28-7	160
97	NW 7-28-7	160
98	SE 7-28-7	160
99	SW 7-28-7	160
100	NE 11-28-7	160
101	NW 11-28-7	160
102	SE 11-28-7	160
103	SW 11-28-7	160
104	NE 19-28-7	160
105	NW 19-28-7	160
106	SE 19-28-7	160
107	SW 19-28-7	160
108	NE 20-29-7	160
109	NW 20-29-7	160
110	SE 20-29-7	160
111	SW 20-29-7	160
112	NW 23-29-7	160
113	SW 23-29-7	160
114	NW 2-25-6	160
115	SW 2-25-6	160
116	NW 2-26-6	160
117	SW 2-26-6	160
118	SE 3-26-6	160
119	NE 10-26-6	160
120	NW 13-26-6	160
121	NE 14-26-6	160
122	SW 16-27-6	160
123	NW 21-27-6	160
124	NW 27-27-6	160
125	NE 28-27-6	160
	Acreage west side	8,960
	Acreage east side	11,040
	Total acreage	20,000

SHREVEPORT STRAW GAS OIL MARKET STRONGER

SHREVEPORT, La., Nov. 7.—Numerous inquiries on straw gas oil for export served to strengthen that market during the week but as yet, they have not been sufficient to raise prices above 3 to 3¼ cents to which they advanced the week before and while orders have been satisfactory there has been none of unusual proportions. Kerosene continues to be the scarcest commodity in the list with little if any to be had even at 5 to 5⅛ cents quoted by one refiner, an advance of a quarter to three-eighths cent above last week's quotation for prime white.

U. S. Motor fuel continues steady at 6½ cents though arrival of cooler weather may weaken prices in this territory. Fuel oil was off 5 cents to $1 per barrel on large orders but steady at $1.05 to $1.10 for small lots.

One refinery in El Dorado, Ark., will operate on a slightly smaller scale for the next week or so as the result of an explosion which damaged one of its pressure units but officials state they expect to be back to normal at the end of that time without having suffered any material losses in operations.

CALIFORNIA MARKET WEAKENS SLIGHTLY

LOS ANGELES, Calif., Nov. 5.—The California gasoline market has weakened slightly during the past week. Certain of the smaller refiners are experiencing great difficulty in moving their gasoline and many marketers are becoming nervous for fear prices will go down to the point where the retail market will break. So far the market is holding up fairly well at present prices but future strength is doubtful.

During the past week gasoline for export has weakened fractionally and is now selling from 5¾ to 6 cents. Exports are holding up quite well, however, with future indications they will continue to hold close to present levels. Engine distillate has also weakened fractionally, demand being small. Kerosene continues very much in demand and prices for both domestic and export kerosene have improved. High quality kerosene for domestic use is now selling from 5½ to 6 cents, while export kerosene is bringing from 4½ to 4¾ cents.

Figures just released from Sacramento show that gasoline sales during the quarter ended September 30, 1927, increased by 28,839,147 gallons over the corresponding period of 1926, a gain of 11 per cent. As usual the Standard Oil Co. reported the largest sales, being followed by the Shell company of California, Union Oil Co., Richfield Oil Co., and Associated Oil Co. in the order named. The largest percentage gain for the first nine months of 1927 over the corresponding period of 1926 was made by the California Petroleum Corp., which showed an increase of 41.2 per cent. The next largest percentage increase was reported by the Union Oil Co. which improved its sales by 35 per cent. The largest gallonage increase was made by the Shell company of California. Of the eight largest companies distributing gasoline, only two showed a decrease in sales for the first nine months of 1927 over the first nine months of 1926, while the total of all other companies selling gasoline in the state showed a decrease of 3½ per cent for the same period. It is very evident from these figures that the major portion of new gallonage available is going to the large companies.

NEW GAS MOVEMENT RESULT OF MEETING

HOUSTON, Tex., Nov. 7.—A movement looking to more rigid conservation of natural gas, creation of wider markets and efforts to give the public fuller information regarding this utility, resulted from the three-day meeting here last week of the Southwest Division, Natural Gas Department of the American Gas Association.

The meeting, the second of the kind since the organization of the Southwest division, was attended by more than 200 members.

In the discussion which followed the address of William F. Chisholm, director of the Minerals Division of the Louisiana Conservation Commission, on "Developments of Conservation of Natural Gas," published in this issue of The Oil and Gas Journal, no action was taken on the floor to carry out suggestions contained in the paper, but it was decided outside of the meeting to have an unofficial committee meeting within the next few weeks if possible to discuss plans for putting into practice some of the suggestions offered by Mr. Chisholm and other speakers. The opinion seemed to be held generally that steps should be taken to adopt better conservation measures, to gain wider markets for natural gas and to disseminate more fully the facts regarding production and distribution of gas.

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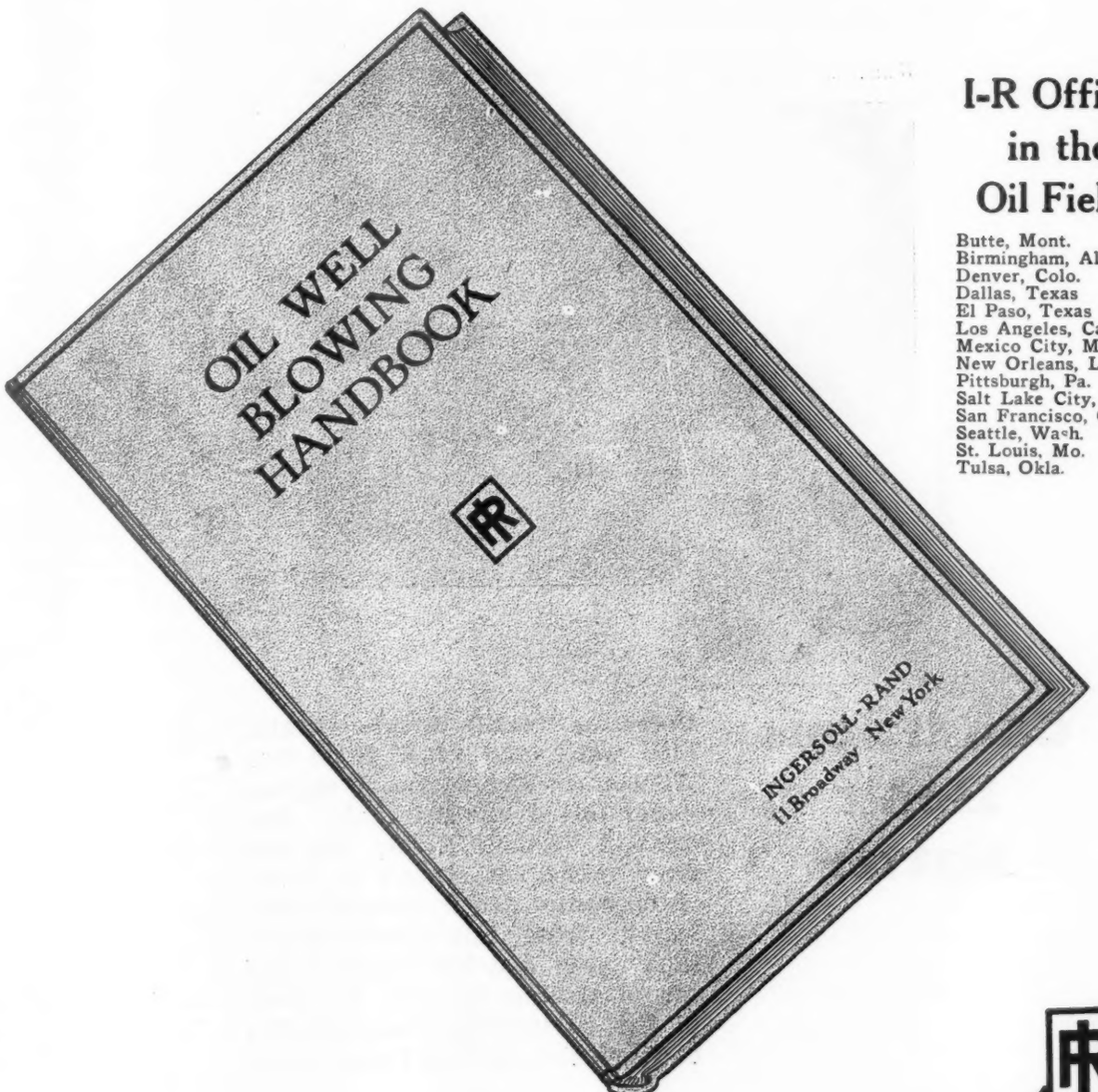

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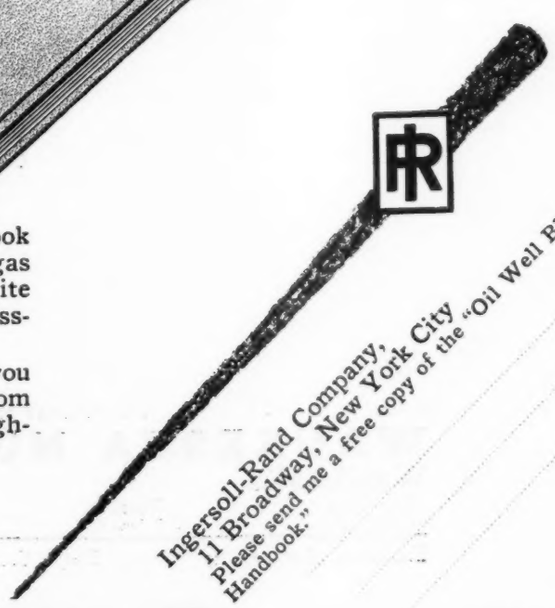

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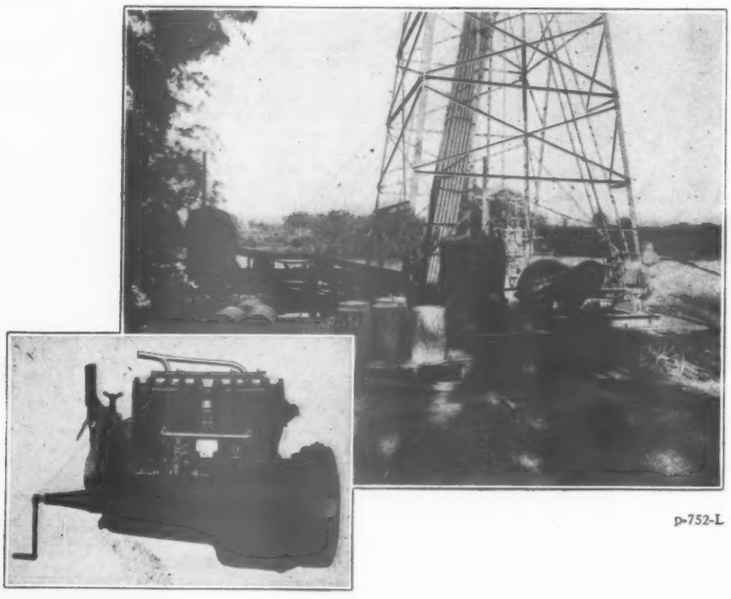

p-752-L

Conditions Don't Matter

Operating steadily in spite of rain, high water and mud, these two Waukesha "Ricardo Head" engines never failed on this job. One drove a Portable Rotary Rig and draw works, the other a 5¾ x 12" slush pump. Their complete protection from rain—portability—high power and low weight—and use of gasoline for fuel, are some of the outstanding characteristics of Waukesha Oil Field Power Units.

Waukesha Oil Field Power Units are built in sizes ranging from 20 to 120 H.P., and are used for both rotary and cable tool drilling, for pumping water and oil, running electric generators for driving slush pumps and air compressors. They are also built in Stationary Units which are not housed, ranging from 80 to 120 H.P. Full information about them may be obtained from Oil Field Bulletin 629 which is just off the press.

P-768-L

OIL INDUSTRY EQUIPMENT DIVISION

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Oil Lubrication for Automobiles

Numerous Factors to Consider, Including Operating Conditions as Well as Engine Design and Oil Specifications

By H. C. Mougey
Chief Chemist, General Motors Research Laboratory.

FACTORS IN LUBRICATION

The factors involved in lubrication of automobiles are numerous and complicated. The properties of the lubricating oil and the design of the engine are interrelated, and must be properly balanced to obtain the best results in actual operation.

In addition, the driving conditions, such as speed, load, continuous or intermittent driving, etc., are also very important. Since the factors involved are so complicated, the writer in this article has grouped them and discussed each group more or less separately.

Oil tests would be of no interest to automobile owners if different oils did not give different results in their engines. This means that certain properties of oils affect their performance in engines, and any tests which are not related to the performance of the oils in the engines are of little interest to the automobile owner, although they may be of interest to the refiner in throwing light upon such matters as the source of the oil, the method of refining, etc. The owner uses oil to decrease friction, to decrease wear, and to decrease noise, and wishes to obtain these results at the lowest cost. There is not, of necessity, any connection between these demands. For example, a mixture of oil with finely powdered glass might not give much different results from a pure oil in regard to friction, but it certainly would increase the wear. The common tests applied to oils are gravity, viscosity, flash, fire, color, carbon, and pour test. Some of these tests are of interest to the car owner, and others are of interest principally to the refiner.

Importance of Viscosity

From the standpoint of the owner, viscosity is the most important property. By viscosity is meant the "body" or "thickness" of the oil. Viscosity is not a property peculiar to oils but is possessed by all liquids. It is ordinarily measured by determining the time required for a certain volume of the liquid to pass through a hole under certain standard conditions. As a general rule, any two liquids which have the same viscosity will have the same lubricating value on a rapidly moving bearing. For example, the Bureau of Standards found that it was possible to lubricate a bearing with a syrup made from ordinary sugar dissolved in water just as well as by using the most expensive and highly refined oil of the same viscosity, so long as other troubles were not introduced, such as gumming and corrosion or evaporation of the water. The owner is also interested in viscosity on account of the effects of viscosity on starting, friction, oil circulation, oil consumption, oil pumping, smoking at the exhaust, fouling of spark plugs, carbon formation in the engine, oil pressure, crankcase dilution, noise, etc.

In a force feed system, at any given speed, the oil pump delivers a definite volume of oil to the oil line. If the engine is new and the bearings are tight it will be difficult for the oil to escape through the bearing clearances and the oil pressure will rise rapidly. When the pressure becomes high enough the relief valve in the oil line opens and the excess oil is discharged back into the crankcase, without going to the bearings at all. After the bearings have been worn, the clearances are greater and more oil leaks through the bearing clearances and high enough oil pressure may not be developed to open the relief valve. Under these conditions more oil is thrown on the cylinder walls. If too much oil is thrown on the cylinder walls, due to excessive bearing clearance, there may result such troubles as high oil consumption, oil pumping, smoking at the exhaust, fouling of the spark plugs, etc. This condition will be accompanied by low oil pressure, since the oil escapes through the bearing clearances and is thrown on the cylinder walls too rapidily to permit the pressure in the oil line to build up. This trouble is overlubrication, but the average owner thinks that low oil pressure is accompanied with underlubrication. By using an oil of higher viscostity less oil will be passed through the bearing clearances and thrown on the cylinder walls, the oil pressure will increase, and the troubles of high oil consumption, oil pumping, etc., will be decreased. In attempting to correct troubles connected with low oil pressure, it should be remembered that in some lubricating systems, the automobile engineers have designed them with small metering holes so that they may actually fail to deliver enough oil to some of the bearings at the same time that they are overoiling some of the cylinders.

Temperature Changes

Unfortunately, the viscosity of an oil, which is seen to be so important in its effect on these troubles, is not constant but it changes with temperature. When the oil gets hot it gets thin, and if trouble is experienced due to high oil consumption caused by the oil being thinned out by heat, the obvious remedy is to use an oil of heavier viscosity, so that even after it has been thinned by the effect of heat, the viscosity will be sufficiently high. If the weather is warm, this heavier viscosity oil may be very satisfactory, but in winter, if the car is allowed to stand until the oil is chilled, the viscosity may increase so much that trouble will be experienced in starting.

If any oil company could develop an oil which would not change in viscosity with temperature, many of these problems would be solved, but regardless of claims made for oils from certain crudes as being better in this respect than other oils, the change in viscosity with temperature for all oils is so great as to make this property of oils the greatest cause for lubrication troubles.

From the standpoint of the automobile companies, if something could be done to prevent the great change in temperature in the oils in use in the engines, the problem would also be solved. Although much progress is being made in this direction, the only practical solution to the problem at the present time is for each person responsible for proper lubrication to study the different conditions, and in each case to use an oil which is light enough to permit starting and which is heavy enough to insure proper viscosity at operating temperatures.

If the automobile owner is content to drive at moderate speeds, so that the maximum oil temperature is not too high, and if the weather is not too cold, it may be possible to put into the crankcase an oil to meet both these conditions, but if the range of temperatures is very great this is impossible.

For example, an oil which has a viscosity of 300 at 100 degrees Fahrenheit will vary from 49 to 55 at 210 degrees Fahrenheit, depending upon the crude from which the oil was refined. The viscosity at 0 degrees Fahrenheit will vary from 30,000 to 50,000, again depending upon the crude. Unfortunately, the above viscosities at 210 degrees Fahrenheit are too light for best results at high speed, and the viscosities at 0 degrees Fahrenheit are so heavy that starting is very difficult or impossible with the average starting equipment.

Crankcase dilution is another important cause for changes in oil viscosity. Unburned fuel, which escapes past the pistons and leaks into the crankcase, dilutes the oil and lowers its viscosity. In the case of a medium bodied automobile oil, a dilution of 10 per cent will decrease the viscosity to about one-half its original value. Crankcase ventilators and control of the jacket water temperatures by shutters or thermostats will make it possible to hold dilution at a reasonable value. The amount of crankcase dilution in an oil depends upon a number of factors such as the driving conditions, the kind of fuel used, and the atmospheric temperature. In the engine the crankcase oil is constantly losing some of the gasoline it contains by evaporation as well as gaining more gasoline from the fuel leaking past the pistons, and the amount of gasoline in the oil at any time is the resulting balance between these two factors. Since gasoline evaporates more rapidly from an oil if there is a larger amount of gasoline in the oil, this dilution tends to reach an equilibrium.

Fortunately, in the winter when the low temperatures would have a tendency to increase the viscosity of the oil to such high values that starting would be difficult or impossible, crankcase dilution is at its maximum, and the effect of the higher dilution is to reduce the viscosity just when this reduction is most needed.

Prediluted Oils

Under average conditions, starting with an oil which does not contain any dilution, the percentage dilution increases very rapidly at first until after perhaps 100 to 200 miles, an approximate equilibrium is reached. If a medium oil of the desired viscosity had been used at the start, and if the dilution at equilibrium should be about 10 per cent, the resulting viscosity would be about one-half the desired viscosity. However, if an oil of about double the desired viscosity had been taken at the start, and before it was put into the crankcase, 10 per cent dilution had been added, the resulting viscosity would be that desired. This is the principle upon which prediluted oils are based. Of course, it is possible to put in the engine an oil of double the desired viscosity, and depend upon naturally occurring dilution reducing it to the proper viscosity, but this requires the operation of the engine at the start with an oil that is heavier than that desired. If the engine should not have been equipped with crankcase ventilator, and jacket water temperature controls, such as shutters or thermostats, water might collect in the crankcase oil in the winter to such an extent as to make it desirable to drain the oil to get rid of the water, just as the equilibrium was being reached and the entire process would then have to be repeated.

It is obvious that if prediluted oils are not used, frequent draining of the crankcase will aggravate the troubles due to changes in oil viscosity caused by crankcase dilution, and also that unless an engine is equipped with crankcase dilution controls such as crankcase ventilators, shutters or thermostats, and efficient oil filters and air cleaners, it may be necessary to drain the crankcase frequently to get rid of water, dirt, and perhaps excessive fuel dilution. Since from four to six quarts of oil are required to fill the average crankcase, if the oil must be drained every 500 miles, then even under favorable conditions the miles per gallon of oil could not be greater than from 333 to 500 miles. Such a low mileage on oil would not reflect any credit on either the oil companies or the automobile companies.

Impurities in Oil

In the past, crankcase dilution was regarded as a great evil, although at the present time it is recognized that the fuel dilution, if kept within limits, is not only comparatively harmless, but in some cases is actually desirable. The dirt and water in the oil are the real objectionable impurities. The water, in addition to causing such troubles as freezing in the oil pump or oil lines, emulsifying the oil so that it changes to the consistency of heavy cup grease and cannot be handled by the lubricating system, also causes other more serious troubles.

The presence of water is one of the necessary factors involved in the corrosion of the hardened steel parts in the crankcase, the cylinder walls and other bearing surfaces. When gasoline burns the products of combustion are largely carbon monoxide, carbon dioxide and water vapor. If the water vapor should be completely condensed to water, it would be found that for every gallon of gasoline burned, over a gallon of water would be formed. Of course, most of the water vapor escapes in the exhaust gases, but some of it gets past the pistons and condenses in the crankcase. Tests made in the research laboratory of one of the large oil companies, and checked in our laboratory show that if the jacket water is not above 110 degrees Fahrenheit, some of the water vapor also actually condenses to liquid water on the walls of the combustion chamber, and the colder the jacket water, the greater the tendency for the water to condense. All gasoline and similar hydrocarbon fuels carry certain percentages of sulphur as an impurity. This sulphur on burning, forms sulphur dioxide and sulphur trioxide, and these products, reacting with the water of combustion, form sulphurous and sulphuric acids. These products, leaking past the piston rings with the other products of combustion, cause the water, condensed in the crankcase, to be acid in reaction and therefore, more corrosive.

Corrosion Elimination

Since all gasoline, and similar motor fuels sold in this country, contain small amounts of sulphur, under unfavorable conditions, corrosion of the cylinder walls and crankcase parts may occur with any commercial fuel. In fact, water alone may cause steel or iron to rust. However, if the percentage of sulphur in the motor fuel is kept below 0.10 per cent, the maximum amount permitted by the Government specifications, crankcase corrosion will be eliminated in practically all cases. The automobile engineers have recognized these facts, and are trying to eliminate water in the crankcase by means of crankcase ventilators, and jacket water temperature controls, such as thermostats and shutters. Since corrosion cannot occur in the absence of water, these devices greatly decrease corrision. Unfortunately, these devices depend upon the heat of the motor and in winter in starting and on short runs or on light

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Cross Section View of Hercules Tubing Hanger
(Patent Pending)

It has adjustable packing features absolutely gas tight and will hold any pressure where gas or air is used to flow well (Tested for 2500 lb. pressure.)

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Use of Ventilators

To throw some light on the limiting values possible under these conditions, tests were made in our cold room. A six-cylinder engine was used, but to stimulate conditions with a perfect circulating thermostat the radiator was disconnected and the jacket water inlet and outlet connected with a short rubber hose. A series of short runs of five minutes each were made in which the cooling liquid, consisting of a mixture of glycerin and water, was brought from the cold room temperature of minus 10 degrees Fahrenheit up to 210 degrees Fahrenheit, when the engine stopped, allowed to cool to the temperature of the cold room and the run repeated. Warm air was supplied to the carburetor with an electric heater. Owing to this heat the choke was not required and was not used in starting or in running. The engine speed was 1,250 revolutions per hour and the power developed was 7½ horsepower (equivalent to road torque at about 25 miles per hour.)

After 70 minutes of actual running time consisting of 14 runs of 5 minutes each, the water in the crankcase was 3.0 per cent and the fuel dilution was 36 per cent and the highest temperature reached by the oil in the crankcase was 20 degrees Fahrenheit. These tests show clearly that in cold weather on very short runs, even under the most favorable conditions, the oil does not warm up rapidly enough to permit the ventilator to function in the normal manner. Consequently, the oil men should not use these devices as excuses for bad motor fuel containing large amounts of sulphur.

Crankcase corrosion has frequently been confused with what appeared to be rapid wear of the cylinder walls and bearing surfaces and faulty lubrication was supposed to be the cause. In most cases it has not been rapid wear but actual corrosion, and lubrication has little or nothing to do with the problem. In all cases we have investigated we have never found that the oil was a factor, but the real causes have been water and the amount of sulphur in the motor fuel.

Significance of Volatility

Another property of oil in which the owner is interested is volatility. Oils may differ among themselves in volatility, and tests have shown that an oil which is relatively nonvolatile will give more miles per gallon of lubrication than a more volatile oil if used under conditions where loss by evaporation is important. This difference in volatility would evidently have more effect at high operating temperatures. At lower operating temperature its effect might be so small as to be negligible. With the present improved roads, more powerful engines, etc., the conditions of high speed, high temperature operation are encountered more frequently than formerly, and volatility is assuming a much greater importance. Volatility cannot be measured directly by any of the common oil tests previously mentioned, but it is very roughly related to flash and fire. Where a nonvolatile oil is required on account of high speed, high temperature operation, a high flash and fire oil will probably give more miles per gallon, other conditions being equal. With lower speed and temperature operation, the flash and fire tests are of very little importance to the automobile owner, and where volatility is important, one should measure it directly instead of guessing at it from the flash and fire data.

Since some of the automobiles which are capable of high speed performance have engines equipped with crankcase ventilators, and since the importance of volatility of the oil for use in engines which operate at high speeds has been demonstrated in such engines operating at high speed, some oil men have mistaken ideas on this subject connecting volatility with crankcase ventilators. However, the factors involved have been known long before ventilators were in use. In a booklet entitled "Lubrication of Internal Combustion Engines," by C. W. Stratford, and published and distributed by one of the large oil companies in 1918, the following paragraph on "Volatility" is found.

"Every motorist is familiar with both the odor and sight of oil vapors escaping from the crank case of his engine through the breather pipes. The harder an engine is worked the more evident does this loss of oil by vaporization become. Just as a boiling radiator quickly dissipates the supply of cooling water in it, so do highly-heated piston heads and other parts rapidly drive out a large portion of the lubricating oil from the crankcase by distillation. But there is a great difference between the vapor loss of one oil and that of another. If a lubricating oil contains a large portion of low-boiling point constituents, the loss of oil vapors will be proportionately high when it is used in an engine and vice versa. Some loss will always occur but the choice of the right oil will reduce such needless waste to a minimum, and be a guarantee of a reasonably low specific consumption, good lubrication and practically carbon-free conditions within the explosion chambers. The degree of volatility which lubricating oils should have is entirely determined by the maximum operating temperatures of the engine and by the character of its load, full or variable. From this it follows that the correct volatility of lubricating efficiency is to be obtained in service. Saving in this direction means added miles per gallon of oil to the motorist, lighter dead weight or increased radius of action to the aviator, and more horsepower hours of useful work per gallon of lubricating oil in all engines."

In considering the factors affecting lubrication we have seen that the most important property of the oil is viscosity, with volatility having importance under certain conditions of high speed and high temperatures. It is true that the oil consumption increases greatly at high speeds and oils are more volatile at the higher temperatures which powerful engines develop at these high speeds. However, this is only part of the story. Most oil pumps deliver oil to the oil line in proportion to the engine speed. At first glance it might appear that this is a desirable system since the pump delivers a defnite amount of oil for each stroke of the piston, regardless of speed. Unfortunately, this oil is delivered to the oil line and not to the cylinders, since the cylinders are not directly lubricated from the pressure lines, but are lubricated by the oil that leaks out of the bearings and is thrown on the walls by the motion of the crankshaft. At high speeds oil pressures increase and the crankshaft itself becomes a powerful centrifugal oil pump. In addition, the amount of oil that leaks out of the bearings is greatly increased by the lower viscosity resulting from higher oil temperatures, and as a result the cylinder walls are usually badly overlubricated at high speeds.

Results of Test

In a test which we made recently to determine the effects of speed temperature, and of volatility of the oil upon oil consumption, a low-priced six-cylinder automobile which is not equipped with a ventilator, was used. Two nationally-advertised and distributed oils were selected for this test. These oils both had the same viscosity at 100 degrees Fahrenheit of 322 seconds. They varied in volatility, One was practically nonvolatile, and the other was intermediate in volatility, typical of the average Mid-Continent oil of this viscosity. At 30 miles per hour the oil consumption for both oils was about the same at 2,000 miles per gallon. At 40 miles per hour the miles per gallon was 1,100 for the nonvolatile oil and 750 for the other. At 50 miles per hour the miles per gallon had dropped to 460 for the nonvolatile oil and only 320 for the oil of intermediate volatility. With the higher-priced automobiles, capable of making higher speeds, much greater differences can be obtained.

The problem of designing a lubricating system which will supply the proper amount of oil with thick cold oil at low speed and also with thin hot oil at high speed is one which has never been entirely solved. Although a heavy oil will raise the miles per gallon of oil at high

(Continued on Page 136)

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OIL & GAS WELL

SUPPLIES

HOUSE HEATING WITH GAS IN SOUTHWEST

(Continued from Page 76)

transmission lines where economic conditions warrant. The gas industry has already devoted considerable study to this subject of high pressure transmission of manufactured gas and in some localities manufactured gas is being piped a considerable distance under high pressure conditions. The utilization of existing pipe lines for the transmission of manufactured gas means that many of the smaller towns which could not support isolated plants will continue to have gas service. When such a time arrives, the great demand built up by natural gas and passed on to manufactured gas, together with the improved methods of manufacture, will mean a rate that will permit its use in efficient gas equipment.

Another disturbing matter brought up for discussion almost every time that house heating with gas is mentioned, has to do with periodic interruptions of service, due to things beyond the control of the utility, such as pipe line breaks and compression station shut downs. While these interruptions of service are annoying, both to the public and to the utility, they seldom exist for more than a few hours and the inconveniences resulting therefrom and the harm done, are more imaginary than real. Of course, these remarks have to do with those utilities receiving gas from long pipe lines which tap many fields, for those utilities not so fortunately situated with reference to gas supply, are seriously handicapped in house heating with gas.

Annual Load Factor

The poor load factor of the house heating load has been responsible to a greater degree than any one other thing for the utilities' attitude toward this class of business. The heating industry knows little and cares less about this subject of load factor, and therefore it behooves the gas industry to give due consideration to ways and means of obtaining the highest possible load factor for this new class of business.

It is common practice with the heating trade to use the same design temperature in widely varying sections of the country. This erroneous practice is due, undoubtedly to the fact that most of the data used by the trade is computed on zero design temperature and is the most convenient to use as published.

In order to obtain the best possible load factor, in the house heating load, it becomes necessary to determine the proper design temperature for the community in question. Good practice, as established by the Society of Heating and Ventilating Engineers, dictates that the design temperature should be about 15 degrees Fahrenheit above the minimum temperature recorded during the past 10 years.

The statement is often made that the public never forgets the day when conditions are such that proper heating of the home is impossible. If this be true, it becomes necessary for the gas industry to include in its program of education this matter of proper plant capacity, for certainly a heating plant, based upon the proper design temperature, functions at the highest possible efficiency and therefore at the lowest possible operating cost, which vitally interests the owner. Such a plant also gives the best possible load factor and the lowest possible maximum demand commensurate with good heating service, which vitally interests the gas industry.

Temperature and Pressure Regulation

Much gas designed equipment has been installed, both by the gas industry and the heating trade, without thermostatic control. Of all the injustices which have befallen house heating with gas, this is by far the most damaging one. Coal equipment when properly converted and thermostatically operated, will come nearer satisfying the customers' idea of an ideal heating plant than the best gas designed equipment hand controlled and the operating cost with the former arrangement will be less in many instances than with the later arrangement. It is indeed unfortunate that the heat regulator has not been considered an integral part of the gas designed equipment and absolutely necessary for its proper functioning. The success of house heating with oil can be attributed to the heat regulator which is considered an integral part of the better oil burners in spite of the fact that the burning of oil is much more difficult to control thermostatically than the burning of gas.

Since the heat regulator is priced out and sold as a distinct and separate unit of the heating plant, it often becomes necessary to justify its cost. This is not difficult to do, even on a strictly business basis, for its presence will reduce the heating cost from 15 per cent to 30 per cent per season, which saving is a very good return on the investment in the regulator. Also the first cost of gas designed equipment, thermostatically controlled, is often no greater than the first cost of gas designed equipment hand controlled, due to the fact that hand controlled equipment requires greater capacity for quick heating than thermostatically controlled equipment, which additional capacity often means the next larger size of furnace or boiler.

From the gas industry's viewpoint, the thermostatically controlled heating plant is particularly desirable, for it operates on a lower maximum hourly demand with a corresponding increase in load factor. Also a greater diversity factor can be expected from thermostatic operation.

Another accessory which should always be included in the installation of gas designed equipment is the gas pressure regulator. Many manufacturers of gas designed equipment now include this piece of apparatus with the equipment. The gas industry realizes the value of the pressure regulator in obtaining the highest efficiency of combustion. The heating trade apparently does not appreciate the value of the pressure regulator for most of their gas designed jobs are minus this inexpensive and valuable accessory.

The pressure regulator renders another valuable service which is of particular concern to the gas utility and this has to do with continuity of service. On the coldest days of the year when the heating plant requires the greatest amount of gas the pressure is usually quite low, especially at points fartherest from the centers of supply. This low pressure is usually sufficient to take care of the load, provided the house piping is of ample size and the gas equipment properly adjusted. With the pressure regulator adjusted for low pressure, 2 ounces or less, the house heating equipment will function properly long after other gas equipment, adjusted for average pressure conditions, fails to function. In other words, the heating plant equipped with a pressure regulator which has been properly adjusted for low pressure conditions has a distinct advantage over the heating plant not so equipped.

Better House Construction

Gas designed equipment has reached the limit in practical efficiency and when functioning in a heating plant correctly designed and properly installed, the limit of efficiency has been obtained and therefore there is no more room for improvement in this direction. There is, however, considerable room for improvement in the matter of house construction, which has a direct bearing upon the cost of heating. This matter of house construction will have a marked effect upon the future of house heating wih gas and for this reason it is of vital importance to the gas industry.

The cost of heating a house depends upon the design, type of contruction and tightness. The bungalow design costs more to heat than the two-story house of equal volume. The house of standard frame construction costs more to heat than the house of brick veneer construction. The unweather stripped house costs more to heat than the weather stripped house, and the uninsulated house of any type of construction costs more to heat than the insulated house. It is in this field of house insulation that the greatest opportunity exists for reducing the cost of heating.

It is the general opinion in this locality that climatic conditions are such as to not warrant the use of insulating materials in the construction of residences.

(Continued on Page 121)

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MAY FOLLOW UNIT PLAN IN LAKOTA SAND DEVELOPMENT IN SALT CREEK

By Tolbert R. Ingram

DENVER, Colo., Nov. 5.—A progressive test of Lakota sand wells in the Salt Creek Field at 100 per cent capacity, which has been under way for some time, is now drawing to a close, with the exception of some edge wells which are being produced for the purpose of determining the best operating methods. The results are of more than ordinary interest, not only because they give a reliable estimate of the capacity of the wells and the reserves which are held in the ground, but for the information that will be obtained as to the best methods of producing the oil in the future so as to conserve the gas pressure and promote the greatest ultimate recovery.

The immediate purpose of the test is to set up a unit operation on the Lakota sand, in which Salt Creek will be not only unique among the fields of the country, but will demonstrate the value of that method in the conservation of gas and oil. This is made possible by several favorable circumstances. One of these is that most of the productive acreage in the field is held under leases from the United States Government, which exercises a supervisory authority in the operation of the pool. The State of Wyoming, which owns one of the most valuable tracts, is content to work in harmony with the operators and federal authorities, and the few fee tracts are controlled by interests in sympathy with or affiliated with the dominant operators. A movement is said to be under way which has for its purpose a similar unification of the royalty interests so that the Lakota sand may be produced as a model operation.

Production Shut In

There are at present more than 100 wells drilled to the Lakota sand and shut in. The number varied while the test was under way, due to new completions, but the test did not involve the producing of all the wells at the same time, for neither men nor facilities were available for such a large undertaking. The Lakota sand occurs at approximately 986 feet below the second Wall Creek and is found at depths varying from 2,350 feet on the higher portion of the structure to 3,900 feet at the edges. It has a thickness of 60 to 65 feet. Beneath the Lakota is another productive horizon in the Sundance which yielded an initial production in excess of 6,000 bbls. in the first test. The Sundance has not, however, been as extensively developed as the Lakota horizon, and less is known of its possibilities, but it is being taken into consideration in the plans under way.

The Lakota and Sundance sand wells were given a 24-hour production test upon being completed and before being shut in. The initial production for these wells was 170,560 bbls. In the 100 per cent test of the shut-in Lakota sand wells recently completed, their aggregate production for a 24-hour period was 93,760 bbls. While this represents flush production, the decline is expected to be very gradual and to extend over a considerable period of time. With this quantity of developed production conserved in the ground, with the sand being operated upon a unit basis, and with all interests co-operating under the best technical advice for the development of the best methods of recovery, it is apparent that the results will be of more than ordinary interest.

Large Lease Owners

The largest owners of leases and production are the Mountain Producers Corp. and the Salt Creek Producers Association. The Midwest Refining Co. operates these properties under an agreement that does not expire until 1922, the Midwest bearing all costs of drilling and producing the oil and paying for it at a price based upon the market price of gasoline at Casper. The Continental Oil Co., the Texas Production Co., the Ohio Oil Co. and a few others have leases in the field, but they are practically inactive as far as drilling operations are concerned and there is little doubt but that their co-operation will be available to the fullest extent in producing the lower sands as it is in the producing of the upper horizons. Salt Creek is electrically operated as a result of the construction by the Midwest a few years ago of an extensive system of power plants and tranmission lines, and the water problem also has been solved.

What may be expected from the successful culmination of the plans will be the producing of the Lakota sand by a single operator, the Midwest Refining Co. This will permit the producing of the sand from the edges toward the top without regard to the location of lease lines and the drawing in of the water line slowly and equally in all parts of the field. This method will do away with the creation of oil "islands" or isolated sections surrounded by water and result in a larger recovery.

The tests which have been under way, and which are being continued on the edges, are expected to result in a fair determination of the location of the water line, the amount of pressure available, the quantity of gas per barrel of oil required to lift the oil to the surface, and other factors that will enable the engineering department to work out the best field practices applicable to this particular field. Salt Creek, already operated under agreements among the operators with the approval of the Government, has demonstrated that it is possible to conserve oil in the ground and prevent waste and the flooding of the markets at times of overproduction, and with the additional step forward, may point the way for the accomplishment of similar results in other areas.

SEVEN PER CENT GAIN IN CAR REGISTRATION

WASHINGTON, Nov. 5.—The number of motor vehicles registered in the United States during the first half of 1917 totaled 20,991,333, an increase of 1,374,578, or 7 per cent, over registration in the corresponding period last year, the United States Bureau of Public Roads announced. Largest percentage increases were shown in Tennessee with 16.7 per cent; South Carolina, 15.5 per cent; North Carolina, 12.6 per cent; Illinois, 12.2 per cent; West Virginia, 11.6 per cent; New Jersey, 11.1 per cent; and Massachusetts, 11.1 per cent. The states having largest registrations were New York with 1,704,987; California, 1,584,723; Ohio, 1,459,815; Pennsylvania, 1,425,424; Illinois, 1,366,060; and Michigan, 1,041,482.

States received $272,119,534 in revenue from automobile registrations, licenses, etc.; of which $12,452,050 has been allocated for collection and administration; $188,525,679 for state highways; $47,937,541 for local roads; $21,795,330 for road bonds, and $1,408,825 for miscellaneous purposes.

TO HOLD COAL CONFERENCE

The Carnegie Institute of Technology, Pittsburgh, Pa., announces that a second International Conference on Bituminous Coal will be held there the week of November 19, 1928. Among distinguished European scientists who addressed the first conference in November, 1926, were Dr. Friedrich Berguis, Heidelberg, Germany; Prof. Franz Fischer, director Institute of Coal Research, Mulheim-Ruhr, Germany; Gen. Georges Patart, Paris, France; Dr. Cecil H. Lander, director of fuel research, Dr. R. Lessing, consulting engineer, Goeffrey M. Gill, consulting engineer, and Harald Nielsen, London, England. It is expected that the 1928 session will cover the latest developments in obtaining substitutes for gasoline from coal, power from coal, low and high temperature distillation processes, smokeless fuel, gasification of coal, utilization of coal tar products, coal as a source for fertilizer, and coal in relation to the production of fixed nitrogen.

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LEASING SYSTEM SAID TO CAUSE GAS WASTE

(Continued from Page 72)

it is essential that the enforcement body be supplied with all the information necessary to the study of current gas problems: accurate locations, accurate reports on drilling and production—and not only accurate but prompt.

The Louisiana law requires the issuance of permits for each operation, accurate location data, full and complete logs, and full and complete reports on gas production, gas purchases, and gas sales. Each well is metered and all meter charts must be checked regularly by the Department of Conservation. Orifice plates must be inserted under inspection, and are sealed in. These regulations may at times seem burdensome, but the responsible operator realizes that only in accurate information lies his protection against his less responsible or less honest competitor. A regulatory body in possession of accurate information upon which to base its decisions is a far safer regulator than a regulatory body groping in the dark. That small group of operators which continually withholds information and then expects the wisdom of Solomon in decisions of the state enforcement body would expect an automobile to operate successfully on a dark night with no steering wheel, no lights, and a blind driver.

Equipped with the necessary information the department is in a position to regulate wisely for the good of the operators and the public, to take measures for safety and waste-prevention before a situation becomes acute. In practically all cases, for instance, where intensive drilling is to be expected, casing and cementing regulations can be formulated upon consultation with responsible operators and all necessary provisions for emergencies made. These special regulations for particular areas are in addition to the general rules governing operations throughout the State, and they are formulated with the assistance and counsel of the operators themselves. There is not one of these rules which, while protecting the interests of the State, does not serve to protect the operator as well.

All producing gas wells in the State are operated under regulations designed to prevent premature exhaustion, and I believe that they are unique in their provisions, in that they place a premium on wide spacing of gas wells while leaving the actual choice of location to the operator himself. Most gas-producing states place some restriction on withdrawal. Usually this restriction is a flat statement of setting forth a definite percentage of the open flow capacity as the allowed withdrawal, for example, Oklahoma limits withdrawal to 25 per cent of the open flow and Texas allows 50 per cent.

Louisiana law places withdrawal on a sliding scale according to the amount of acreage which a particular well occupies and in the center of which the well must lie. Thus, a well in the center of 160 acres may take 24 per cent of the open flow capacity. A well in the center of 80 acres may take 21 per cent; 40 acres, 18 per cent; 20 acres, 15 per cent; 10 acres, 12 per cent; 5 acres, 9 per cent; and tracts less than 5 acres, 7 per cent. If this percentage reduces the quota of the well below 1,000,000 feet per day a withdrawal of 1,000,000 is permitted. This withdrawal basis places a definite premium on wide spacing and tends to discourage line crowding, so harmful in a gas area.

Definite Working Pressure

Practically all the states confine their restrictive measures in control of output to rules based on a flat percentage of the open flow capacity. Louisiana goes one step further and adds a controlling feature based on the maintenance of a definite working pressure. All wells, while limited to a percentage withdrawal based on open flow, and in accordance with the amount of acreage drawn on, are also limited to a withdrawal that holds a working pressure no less than half the rock pressure. In all cases a working pressure of at least 200 pounds must be maintained. This provision serves to retard water encroachment by maintaining a definite back pressure on the sand throughout the field. When depletion reaches the point at which the closed pressure is less than 200 pounds, the minimum required working pressure is lowered by the department.

Several years of operation under these rules has convinced the department and most of the operators that gas withdrawal control based on open flow capacity alone is a mistake. It is my personal opinion that the Texas regulation allowing a withdrawal of 50 per cent of the open flow capacity is no control at all. In the carrying out of these gas regulations, Louisiana conservation authorities eliminate discrimination and the personal equation as much as possible by officially gauging all wells whenever possible, and checking all charts. This is only a small measure of protection for the honest operator.

One serious difficulty in the enforcement of any restriction based on open flow capacity is the fact that in some areas sand and water conditions make open flow measurement so dangerous in practice that in such areas it should be forbidden entirely. The next step in the development of gas measurement, we hope, will be the perfection of a method whereby the open-flow capacity may be determined without blowing the well. Several methods have been worked out but they are still far from perfection, particularly for use in high-pressure areas. Eventually, in order to eliminate the waste involved in blowing a well for measurement, all withdrawals will probably be based on closed pressure measurements.

Method at Monroe

The Monroe gas field is operated under the system of control that has been outlined. As wells may be safely blown for open flow measurement in the Monroe area, the department gauges the field regularly twice each year, and publishes mimeographed reports giving the open flow and closed pressure results and the weekly quota for withdrawal on each well. This publication informs the operator just how much gas he will be allowed to take on each well. By this means the possibility of misunderstanding is reduced to a minimum and the operator can meet the department on the safe ground of full information.

In its early history the Monroe Gas Field was not unlike other fields. It was developed ahead of its market. It was overpulled—recklessly overpulled. The habit of reckless extravagance was so firmly grounded in the minds of the early operators that the feeble efforts of the first conservation agents met with stiff resistance. The meter law was passed but the meters were by-passed. Tampering with orifice plates was a common practice. Facing a determined opposition with an equally determined effort to enforce a reasonable law, the department started to check up the field. Old wells in bad condition were forced into good condition, or into abandonment.

When recalcitrant, irresponsible operators refused to correct faulty wells, the threat of the law empowering the department to repair a well by contract and making the cost or such repairs a lien on all the operator's property in the state, usually produced results. Meters were regularly checked. By-passes were eliminated by the passage, and enforcement—of a law making it a punishable offense to have a by-pass connected in the line whether or not it was in use.

A systematic check of orifice plates revealed that many plates had been tampered with and larger orifices substituted. One inspection party, finding all plates with orifices of the proper size, but apparently recently disturbed, sent an agent ahead and found one company's employes feverishly engaged in removing illegal plates and substituting plates to meet the law. When the 120-pound agent asked the 220-pound foreman of the gang what he was doing, the reply was a straight right to the point of the chin.

Those, however, were the good old days. Things have changed. With strict and impartial enforcement, the operators gradually came to look on the department as a friend instead of a meddler. The worst offenders are now the best conformers—

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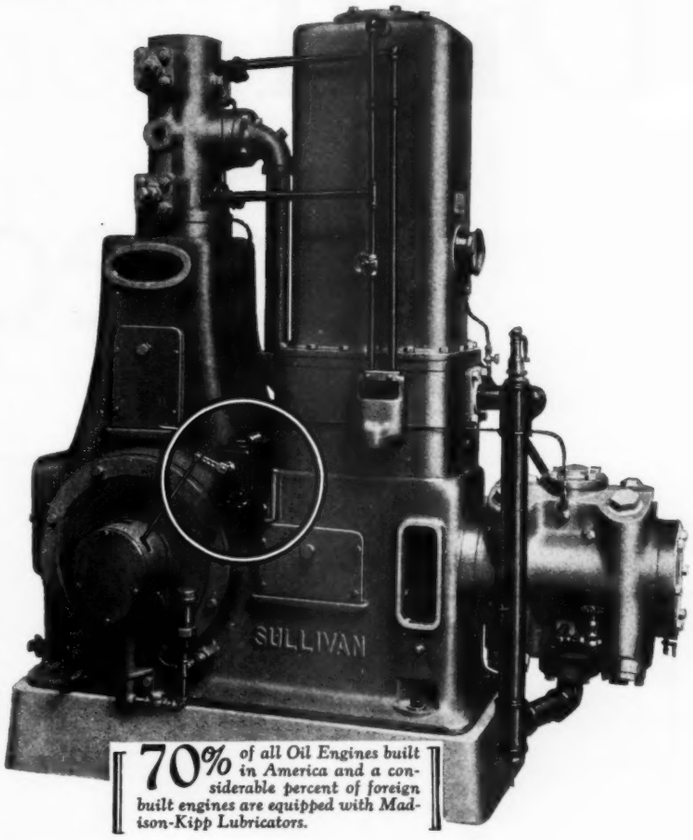

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So long as the engine, pump or compressor equipped with Madison-Kipp Lubricators runs, the Madison-Kipp *keeps it properly lubricated.*

The sight feed indicator shows accurately the oil *that is delivered to the cylinders.*

Madison-Kipp Lubricators are flexible in size, oil feed adjustment, type and drive location. They can be readily applied to any engine, pump or compressor in the field. They are built with the ruggedness necessary to stand up to oil field work for *long periods* of time *without repair.*

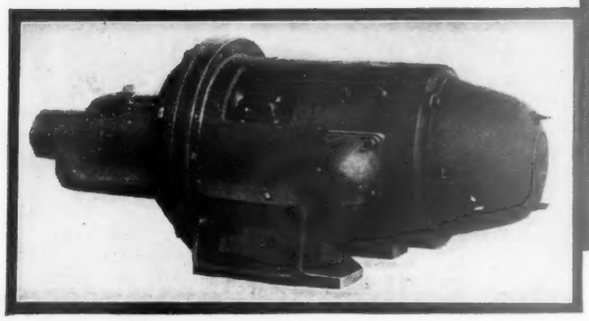
They are stocked in Oil Field Supply Stores.

MADISON-KIPP LUBRICATORS are easily applied in the field on
Oil, Gas, Steam Drilling Engines
Oil, Gas Pumping Engines
Compressors
Steam Pumps
Slush Pumps
Stationary Power

Directions for application are in the box of the lubricator.

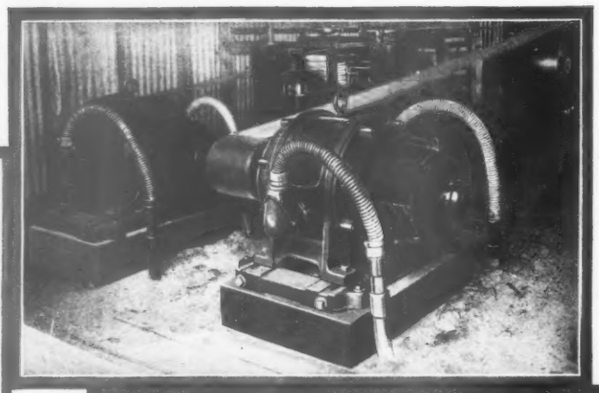
FRESH OIL
Madison-Kipp Lubricators
Lubrication Specialists Since 1899 *Madison, Wisconsin, U.S.A.*

Drill Electrically



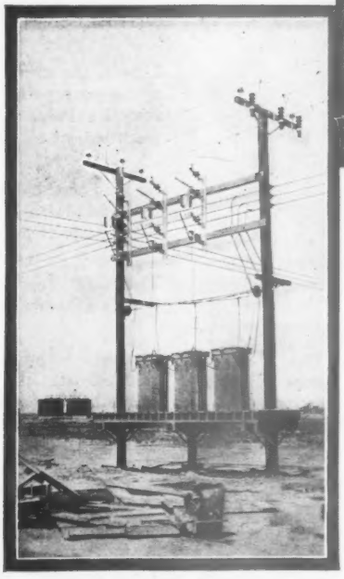
RIG LIGHTER

When night comes, drilling operations need not slow down. The daytime pace can be sustained—if the light is bright. This steady and unfailing light is supplied by the Westinghouse rig lighter.



TWIN MOTOR DRILLING EQUIPMENT

Wells can be drilled quickly and holes straighter. Tools can be pulled fast, more surely. Continuous service is assured—no hesitating, no faltering—a steady flow of power 24 hours a day.

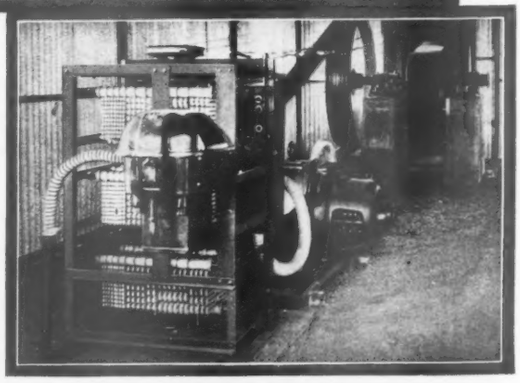


TRANSFORMERS

A typical bank of Westinghouse transformers with protective equipment furnishing power for an oil field. This equipment can be quickly and economically installed.

AIR AND GAS LIFTS

When wells become sluggish or stop flowing—when every delay means a serious loss in production—it is then Westinghouse equipment shows its dependability. Westinghouse motors are especially applicable to air and gas lifts.



TWO-SPEED PUMPING EQUIPMENT

A sturdy, two-fisted unit that never tires, stalls or quits—just plugs along 24 hours a day—every day. The cost of electric power to operate it is relatively low.

XCIII-9 A

for Economy More Speed Increased Production

THE many economical advantages and dependable operating characteristics of Westinghouse equipment for oil fields have definitely established the superiority of the electric drive over other forms of power.

Westinghouse motors are designed especially for, not merely adapted to, oil field requirements. Every application has been scientifically studied—every phase of operation and development followed up—so that every installation assures consistent performance at all times.

Whether it is equipment for drilling, pumping, air or gas lifts, rig lighting—or any oil field activity where electricity is used—Westinghouse is prepared to serve with undivided responsibility. Forty years of successful experience in building everything electrical has made this possible.

There is a Westinghouse Office near every field that will gladly cooperate and offer friendly, helpful service in assisting you in solving your problems.

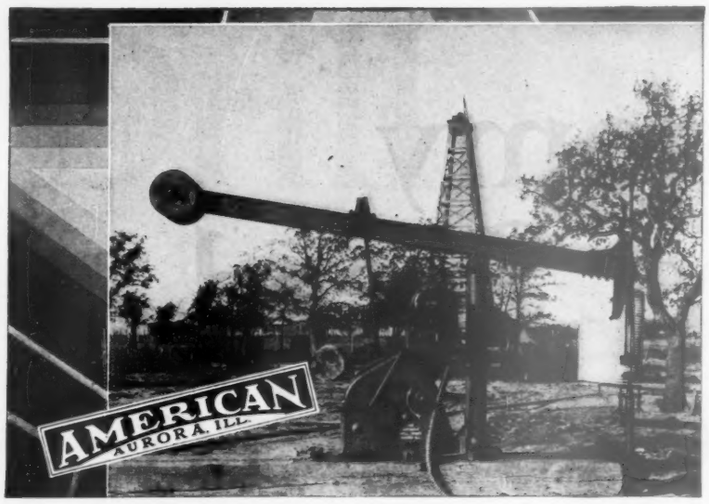
Westinghouse Electric & Manufacturing Company
East Pittsburgh Pennsylvania
Sales Offices in All Principal Cities of the United States and Foreign Countries

Serves *the* Oil Industry with

Arc Welding
Control Apparatus
Choke Coils
Drilling Equipment
Disconnect Switches
Flood Lighting
Line Material
Lightning Arresters
Meters
Outdoor Substations
Pumping Equipment
Rig Lighters
Rig Light Fixtures
Safety Switches
Squirrel Cage Motors
Static Condensers
Synchronous Motors
Switchboards
Turbines

Westinghouse

X94980A



The "American" Oil Well Pumping Jack!

The "American" Totally Enclosed Oil Well Pumping Jack has been designed in answer to the demand for the efficient pumping of individual wells.

American Jacks are made in four sizes—twelve inch to fifteen inch stroke, fifteen inch to eighteen inch stroke, eighteen inch to twenty-two inch stroke, and thirty inch to thirty-six inch stroke. All gears are totally enclosed and run in a bath of oil which floods the bearings, insuring smooth operation and long life. The head proper may be disengaged from the cable and swung back from the walking beam, permitting the rods to be pulled without moving the jack itself. There are no screw mechanisms or adjustments necessary. No gears are exposed.

Compact, sturdy and economical in operation! Ask for bulletin 181.

GENERAL OFFICES AND WORKS: AURORA, ILL.

The American Well Works

DISTRICT SALES AGENCIES:

Dallas, Texas	Denver, Colo.	Atlanta, Ga.	Roswell, N. M.
Boston, Mass.	St. Louis, Mo.	Charlotte, N. C.	Philadelphia, Pa.
Detroit, Mich.	Omaha, Neb.	Pittsburgh, Pa.	Kansas City, Mo.
Tulsa, Okla.	Joplin, Mo.		St. Paul, Minn.
Vancouver, B. C. Can.		Salt Lake City, Utah	

BRANCH OFFICES:

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New York, N. Y., Room 523—165 Broadway Los Angeles, Calif., 420 East Third Street

with one exception. The old trouble makers make trouble no more. The Monroe operators have their Monroe Field largely because the department enforced what laws they had and went after the legislature for more.

Shows What Can Be Done

Without its intervention Louisiana would now be unable to advertise to the world that the world's largest gas field is the exception that proves the rule. Louisiana's success in making Monroe gas field a safe investment even after it had started down the usual gas field road is proof enough that once the co-operation of the operators is secured gas conservation stands a chance to succeed. Without co-operation of the operators, failure is almost certain. In 1921 metering regulations went into effect. From February 28, 1921, to December 31, 1926, the metered withdrawal from the Monroe gas field amounted to 533,484,947,000 feet. With unmetered, by-passed and wasted gas taken into consideration, it is safe to estimate that the total withdrawal from the field from its discovery to December 31, 1926, would be well over the 700,000,000,000 mark.

In pursuance of its policy of careful study of gas areas, the Monroe Field has been checked and rechecked. Its pressure decline and open flow decline have been watched. Its immense area has been divided into zones based on relative closed pressure, and mapped, and the data on each zone segregated and made available for the public. Some of the results of this work are shown on the accompanying pressure zone map showing the condition of the field as of February 10, 1927.

There are practically no bad wells left in the Monroe Field. Only one of the old craters, of which there were several in the early life of the field, is still active, and its activity is now of small importance. The Monroe Field is a monument to impartial enforcement of conservative law and co-operation of the operators—and that co-operation came about for one reason only—the operators saw in conservation of gas a sound business proposition. For that reason, and that reason alone, Monroe still has its gas field, and will have it for many years to come.

There is another feature of natural gas conservation still to be considered—a question that is even now the subject of earnest consideration on the part of the leaders of the petroleum industry—the conservation of natural gas in the production of crude oil. Some progress has been made in gas conservation where gas alone is the object of development, but where gas and oil are developed together the situation could hardly be worse. The clash of selfish interests, the feverish demand for quick returns, the reckless line fighting that characterize all oil development under our present leasing system have been the bane of the industry since the time of Colonel Drake.

Gas and Oil Production

No one knows, no human mind is capable of estimating the tremendous waste of natural gas in the production of crude oil. Again, the lessor, the lessee, the landowner, the public, and the lawmaker, are all equally responsible. It has taken a Seminole to awaken the industry to a realization of its position. The waste of natural gas in the production of crude oil is even more inexcusable than the waste of gas in a dry gas area. In the case of fields yielding gas alone—the gas is dissipated for quick returns on oil production, not only is the gas wasted, but crude oil, otherwise recoverable, is left in the ground because of the gas waste, because of the dissipation of the natural lifting power.

How many fields are now operating on pumps that once operated on natural flow? In how many fields is man's feeble substitute, air or gas lift, trying to make up for the reckless waste of the natural lifting power? How many oil fields still drilling commenced operations on their own gas and now have boilers fired by gas from distant fields?

Late in 1922 Cotton Valley Field in Webster Parish, Louisiana, came in with its discovery well making 30,000,000 cubic feet of gas. Subsequent drilling gave evidence of a reserve approximating 100,000,000,000 cubic feet. After the completion of six successful gas wells, one enterprising gas company laid its line into the field in 1923. A well on the edge of the field was then brought in making 150 bbls. of oil and 30,000,000 cubic feet of gas.

Immediately the reckless drilling was under way. Two hundred wells were completed within a year, practically all of them saving a small amount of oil and recklessly wasting a large amount of gas. One year after the gas line was laid in to the field there was not enough pressure to feed the gas into the line, and the line was used to pipe gas into the field for drilling purposes. Of the estimated reserve of 100,000,000,000 cubic feet, less than 1,000,000,000 was piped out of the field. The original gas reserve represented approximately $4,000,000. The gas recovered and piped out represented less than $40,000. In other words, close to $4,000,000 in gas had been wasted to secure about $8,500,000 in oil. The blowing off of the gas possibly meant a slightly increased flush production, but it also meant tremendously increased lifting costs, short life and an increase in the percentage of unrecoverable oil.

Pine Island Field

Within the last few months a somewhat similar case occurred in connection with the discovery of deep production in the old Pine Island Field of Caddo Parish. Only recently, in order to get a daily production of about 10,000 bbls. of $1.40 crude oil, the operators were blowing into the air between 40,000,000 and 50,000,000 cubic feet per day of gas worth about $40 a million. They have already dissipated their lifting power, brought on serious water troubles and have largely ruined what might have been a good field.

In these two cases the Department of Conservation stood by helpless because of a law which gives the operators the privilege of wasting as much gas at 3 cents per 1,000 cubic feet as the market value of the oil produced. Only two wells in the Pine Island deep production failed to meet this requirement and were shut in.

These two cases are typical of the enormous waste of gas accompanying the production of oil. In these two cases the wording of the law prevented salutary action on the part of state authority. Had the law not been on the books, undoubtedly, under the general police power of the State, steps could have been taken to correct at least some of the waste.

The leaders of the industry have now designated this waste of natural gas as one of the petroleum industry's greatest evils. Gas men, interested in gas conservation, should stand firmly back of any well directed effort on the part of state authority or of the petroleum industry itself toward the correction of this glaringly wasteful practice.

I wish to point out that without co-operation of the gas industry all gas conservation laws will fail. The most effective, the only effective, development of gas conservation will be that which the industry plans and works out. Your reform must come from within, and begin at the beginning with a reform attack on the present leasing system.

The gas industry must look more closely to the development of public opinion along sane lines, must win the public from the cult of Zoroaster.

The gas industry must get away from the idea of conservation as the result of state law and get down to the realization that effective conservation of gas is a sound business proposition.

Bulletin 716-D of the United States Geological Survey tell us that.

"It is known that for the United States as a whole more gas has been lost than has been marketed—that the underground loss plus the loss from blowing off wells plus the quantity used more or less efficiently in the field but not sold, plus the large quantity lost along gathering lines, main lines, and distributing lines amounts to more than all the gas that has been delivered to both domestic and industrial consumers."

More gas lost than has been marketed. I leave this point with you: Your industry is organized for profit. You pay good money for all the gas you get. You waste more of that gas than you sell, and there is no profit in wasted gas.

Casing Shoes of Agathon Steel made by Beaumont Iron Works, Beaumont, Texas

Agathon Steels of Fine Forging Qualities

FORGEMEN throughout the country appreciate the uniform texture, freedom from blow-holes, pipes, segregations and surface defects of Agathon Alloy Steels. The roughnecks in the field appreciate the toughness and wear-resisting qualities of these super-steels. And the operators, too, appreciate the lack of delays usually experienced with inferior steels.

Agathon Alloy Steels are made in various analyses to meet the individual requirements of casing shoes, bits, jars, tongs, etc. Write us for details and a copy of our Agathon Alloy Steel Handbook.

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Tulsa, Oklahoma

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World's Largest and Most Highly Specialized Alloy Steel Producers

Makers of Toncan Copper Mo-lyb-den-um Iron

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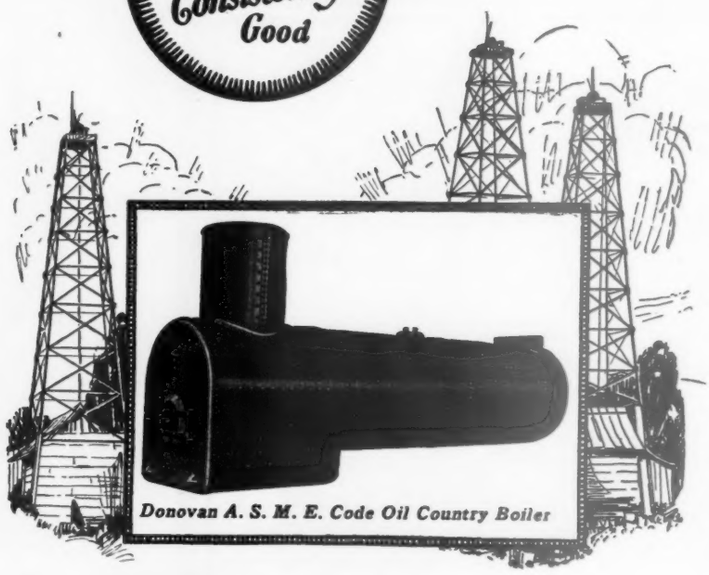
ACATHON STEELS

AGATHON ALLOY STEELS

Donovan Boilers are Consistently Good



Donovan A. S. M. E. Code Oil Country Boiler

An Old-Time Driller Dropped in for a Talk

the other day and he naturally drifted to oil country boilers. This man has been in the game for a good many years and knows what a boiler should be and should do.

He told us that he had used every known make of boiler, —many *of* them,—and under nearly every possible working condition.

Mr. Driller stated that without reservation, he had found DONOVANS steamed just twice as easy as any other make. And they used far less fuel.

We were pleased to hear this, of course, but not surprised for it is the ordinary experience. Why shouldn't it be? DONOVANS are designed and built to perform in the manner which this driller discovered after many comparisons.

No finer boilers are built - - that's why you should use them. Their low operating expense and their ability to deliver the goods are apparent.

Manufactured by

DONOVAN BOILER WORKS, INC.

PARKERSBURG, W. VA.

NEW YORK OFFICE—30 Church Street

FRICK-REID SUPPLY COMPANY

Mid-Continent Distributors

GREAT NORTHERN TOOL & SUPPLY CO

MIDLAND IRON WORKS

Montana Distributors

All Leading Supply Houses Throughout the Eastern Fields Handle

DONOVAN QUALITY PRODUCTS

NONE BETTER

CENTRAL WEST FIELDS

(Continued from Page 58)

mense gas flow in the Newburg sand, estimated at close around 5,000,000 feet initial. In Dover Township, same county, J. W. Cushing brought in a nice gas well at a second test on the Harrison property, Lot 6. In Strongville Township, the Empire Gas & Fuel Co. is drilling a second test in the northwest corner of the H. M. and M. O. Whitney 65 acres, Lot 32. In Olmstead Township. The Logan Gas Co. is starting a test 734 feet from the north line and 250 from the west line of the J. R. Hall 29-acre farm, Lot 22. Groff Brothers are drilling No. 1 in the northwest corner of the A. W. Sprague 3 acres, Lot 31, and John Arthur is drilling No. 1 well 25 feet from the north line and 1,000 from the east line of the J. Pulse 6 acres, Lot 31.

In Jefferson Township, Knox County, the East Ohio Gas Co. got a light gasser at a test 437 feet from the north line and 600 from the east line of the Alvin Melton 40 acres, Section 4, while the Ohio Fuel Gas Co. got a good average gas well, 845 feet from the north line and 1,250 from the west line of the A. F. Zimmerman 98 acres, Section 34.

In Ashland County, Orange Township, the Logan Gas Co. found a dry hole at a second test on the Clayton Harmon farm, Section 18. In Sullivan Township, same company has an exceptionally fine gas producer in No. 2 on the Ross Langford farm, Lot 90. The Kemrow Co. made a location for No. 5 Mell, 500 feet from the north line and 450 from the west line of the J. A. Spencer 138 acres, Lot 79. This company is drilling a test 316 feet from the north line and 188 from the east line of the J. E. Ringler 10 acres, Section 11, Clear Creek Township. Hulse & Kundtz are drilling a test 184 feet from the north line and 360 from the west line of the Roy Dreher 8 acres, Section 11, and the Logan Gas Co. is getting ready to start a second test 415 feet from the south line and 230 from the west line of the James W. Shaw 42-acre farm, Lot 12. In Troy Township, same company has made a location for a test 600 feet from the north line and 516 from the east line of the S. L. Markel 50 acres, Lot 1.

Lorain County

In Columbia Township, Lorain County, the Ohio Fuel Gas Co. struck a very nice gas well at a test 1,425 feet from the south line and 360 from the east line of the R. R. Fitch 60 acres, Lot 15, and a light gas well at a test 871 feet from the north line and 660 from the east line of the J. and H. Longbon 100-acre farm, Lot 12. Empire Gas & Fuel Co. is drilling a test in the southwest corner of the G. and M. Brooks 60 acres, Lot 15.

In Wayne County, Chippewa Township, the East Ohio Gas Co.'s test, 660 feet from the south line and 600 from the west line of the John Weintzheimer 73-acre farm, came in a failure for either oil or gas. The Wiser Oil Co. is drilling a well on the Alice McFadden 40 acres, Section 8, Chester Township. The Logan Gas Co. made a location for a test 660 feet from the north and west lines of the Nancy Wagner 60-acre farm, Section 11, Baughman Township, also a location for a test 660 feet from the north line and 810 from the west line of the J. H. Tschantz 82 acres, Section 15, Sugar Creek Township.

In Holmes County, Hardy Township, the Empire Gas & Fuel Co.'s second test 405 feet from the north line and 460 from the west line of the William Watts 153-acre farm, Lot 13, is estimated good for about 5 bbls. of oil a day and about 250,000 feet of gas. In Monroe Township this company is drilling No. 1 on the M. G. Bird 100 acres, Lot 10, also No. 2 on the William Martin 100 acres, Lot 22. East Ohio Gas Co. is drilling a second venture on the Stephan R. Williams 100-acre farm, Lot 11. In Kilbuck Township, the Kemrow Co. made an excellent gas strike at No. 3 on the William Sanders farm, Lot 13.

In Newcastle Township, Coshocton County, Cassingham & Bell Brothers' No. 19 well, 120 feet from the north line and 1,000 from the west line of the George Cassingham 319-acre farm, Lot 5, proved a small gasser in the Berea sand at from 716 to 730 feet. No. 20 well, 280 feet from the west line of the same farm and 20 feet south of the creek, is now drilling. In Monroe Township, the East Ohio Gas Co. is drilling a test 825 feet from the north line and 675 from the east line of the C. L. Dalrymple 100 acres, on the oil map as the B. F. Mohler farm, Section 2. Empire Gas & Fuel Co. made the location for a test 636 feet from the south line and 600 from the east line of the George Snow 82-acre farm, Section 2, and the Logan Gas Co. set a stake for a test 660 feet from the south line and 800 from the east line of the D. W. Brillhart 180 acres, Section 22. In Perry Township, the Preston Oil Co. made a location for No. 4 well 330 feet from the west line of the E. R. and O. M. Vanwinkle 187-acre farm, Section 15. The well is 660 feet east of No. 3 well on the same farm, and east of the highway passing through the farm.

The Ohio Fuel Gas Co. is putting in natural gas in Genoa, Elmore, Oak Harbor, LaCarne and Port Clinton, in Ottawa County, and may also reach Lakeside, the big summer resort between Port Clinton and Marblehead. Rocky Ridge, Graytown, Elliston and other smaller hamlets through Ottawa County may be served later.

Michigan

Quietude prevails in the Saginaw Field, and all the producing wells are being put into good shape to withstand the hard winter season that prevails in that section. Only one completion was reported from the Saginaw Field during the week, the Sun Oil Co.'s No. 4 on the Pere Marquette right of way, near the railroad freight house on West Genessee Avenue. Sand was found at 1,801 feet and drilled 16 feet in, to a total depth of 1,817 feet, and given a shot. Indications are for a 15 to 20-bbl. pumper from the Berea sand.

The Phelon Street test of Crowley & Carr on the Curtin property is reported on top the Saginaw sand, and ready to drill that formation. The well was close to 2,300 feet deep at last report.

Owing to the light production found in the Berea sand by the Sun Oil Co. in its No. 4 on the George Kuck farm, in Section 10, Saginaw County, the company has concluded to drill it down to the Saginaw sand in hopes of finding a better production.

Late advices say the wildcat well in Midland County being drilled by the Pure Oil Co. on the J. B. Raynor farm, in Greendale Township, had reached a depth of 1,700 feet. A showing of oil, which was slight, was found below the Marshall sand, which lies above the Berea sand and found in the Saginaw Field at around from 600 to 700 feet.

The wildcat of Vorhess & Sovereign, near Sterling in Arenac County, north of Saginaw and Bay City, struck top of the Berea sand at 1,640 feet, and going through this sand failed to find a pay and is drilling deeper.

J. A. Walsh of Flint, Mich., is having a well drilled on a lease in Fairfield Township, Shiawassee County, the contract work being done by V. M. Vorhees, Saginaw operator and contractor.

A slight showing of oil was reported at around 600 feet in a wildcat being drilled by Norris & Smith in Section 16, Conway Township, Livingstone County.

KENTUCKY-TENNESSEE

(Continued from Page 58)

per day from close to 600 wells, and was later sold to the Swiss Oil Corp., the Cumberland Petroleum Co. holds large producing leases in that same area and is among the big operators of the Blue Grass State.

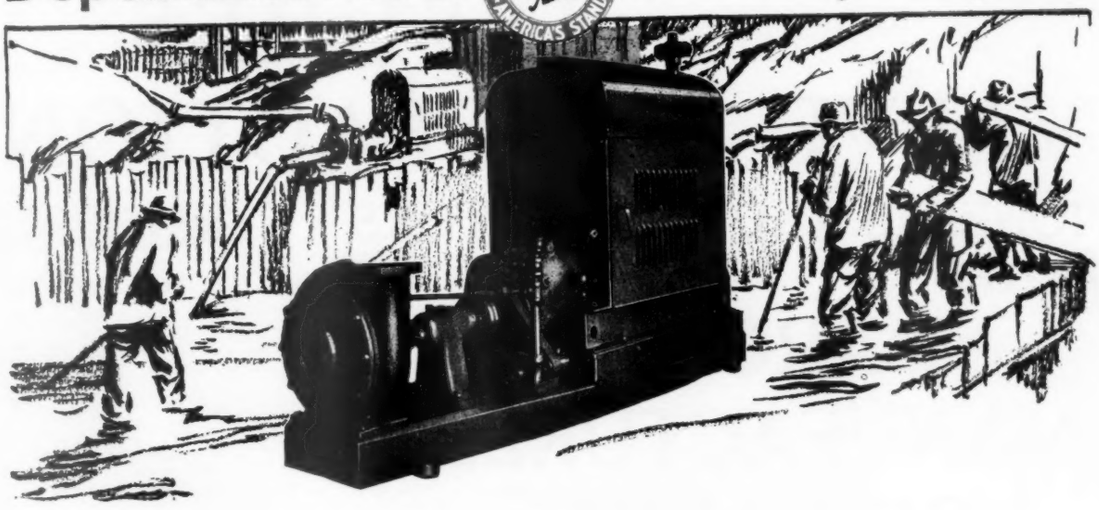
New faces are entering the Tri-County Field daily and seldom one leaves without securing some acreage to test and the newcomers are usually of the old line operator kind, men that are most thorough in the industry. It is this line of men that usually make a field what it should be, if the oil is there, for they surely go after it in a business-like manner.

Week's Work

A summary of the week's work in the

Dependable Power for Every Purpose

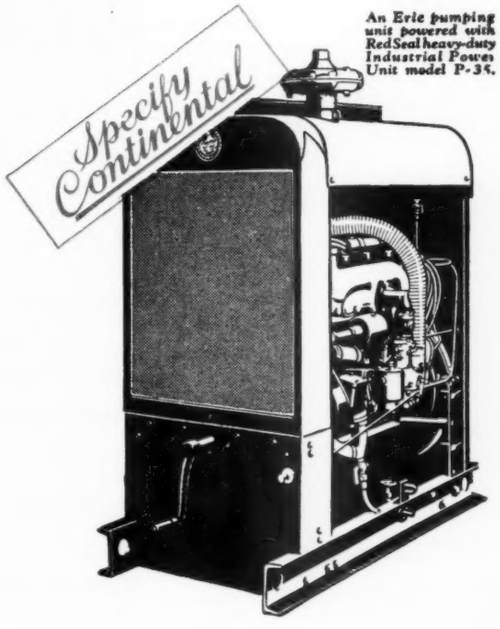
CONTINENTAL MOTORS · Best Power in the Nation · AMERICA'S STANDARD



Leadership in Industrial Power

The recognized leadership of heavy-duty Red Seal Continental Motors has been earned by the experience gained through designing and producing hundreds of models and millions of motors.

Where industry flourishes and efficiency holds sway Red Seal Continental Motors play a dominant part. Their long life and economy are outstanding in industry throughout the world.



An Erie pumping unit powered with Red Seal heavy-duty Industrial Power Unit model P-3¢.

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INDUSTRIAL EQUIPMENT DIVISION
Office and Factory: Muskegon, Michigan
The Largest Exclusive Motor Manufacturer in the World

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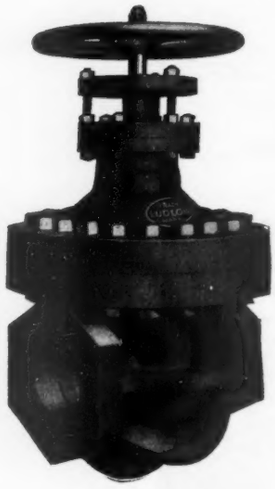
THIS TRADE-MARK INSURES VALVE SATISFACTION

TRADE LUDLOW MARK

—PIONEERS AND ORIGINATORS

AND NOW THE

LARGEST MANUFACTURER OF VALVES IN THE WORLD!



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Harrisburg Pipe & Pipe Bending Co.,
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Henderson Iron Works, Shreveport, La.

THE LUDLOW VALVE MFG. CO.

TROY, NEW YORK

KANSAS CITY CHICAGO BOSTON PITTSBURGH

LUDLOW VALVES

"WORTH ITS WEIGHT IN GOLD"

Kentucky Field shows 26 completions, 10 producers with an initial production of 514 bbls., 16 dry holes and no new gas wells. Compared with the previous week, there were 7 less completions, 10 less producers, 138 bbls. more production, 4 more dry holes and 1 less gas well.

The wells were distributed by counties and districts as follows:

County—	Comp.	Oil Wells	Prod.	Dry	Gas
Ohio	16	5	470	11	0
Barren	4	1	1	3	0
Daviess	3	2	40	1	0
Allen	3	2	3	1	0
Total	26	10	514	16	0
Last week	33	20	376	12	1
Difference	7	10	138	4	1

Western Division

Work would look rather slim in Kentucky were it not for the development under way in the western division as little is under way in the eastern portion. If weather conditions remain favorable it is likely more work will be done in the western half of the State during November than for any period during the rush months of the year when the Ambrose Pool was in its greatest activity. While there are still many locations there to drill, the average operator feels the call of the wildcatter and from now on to the closing of activities the bulk of the new work will be in testing out new territory for early spring development.

A large number of dry holes were reported the past several days and more are bound to follow as long as wildcatting is kept up, but even out of a half dozen tests, if one good commercial well is found, the operators will be satisfied, for a new producer means the opening of a new pool. These are chances that the oil man takes in the hazard for production.

Ohio County

The drilling of close to 100 wells in the Ambrose Pool in Ohio County and the heavy drain of oil from the producing sands, does not apear to have taken the bulk of the oil from the sand, for the newest well of magnitude in the heart of the rich streak is Daugherty and others' No. 7 on the Cora Wells 130 acres, west of the Weller lease, which did 250 bbls. initial. A string of 619 feet of casing was set, sand was found at from 619 to 665 feet and drilled to a total depth of 671 feet and shot with 140 quarts. No. 8 is starting on the same farm. This firm's No. 3 on the Hill Rhodes farm is reported making a showing for a good well and No. 4 has been started. This is about a mile west of the Weller lease, near Union Grove Church and west of the Cora Wells lease.

North of the Weller lease, the Creek Drilling Co.'s No. 10 on the Sally Early 112 acres is showing for another nice well, possibly starting at close around 100 bbls.

Another Good Well

Another good well in the heart of the Ambrose Pool is the Wood Oil Co.'s No. 19 on the Mary J. Elmore 100 acres, which set a string of casing at 680 feet, found sand from 680 to 723 feet and went to a total depth of 732 feet and shot with 160 quarts, had an initial production of 100 bbls. No. 20, same farm, is under way. Same company's No. 2 J. C. Ralph 12 acres, in the Midkiff area, is said to be making a nice showing and Nos. 4 and 5 on the J. C. Smith farm, in the Sunnydale Pool, are under way, nearing the pay sand.

H. S. Russell's second well on the A. P. Kelly farm, near the Midkiff area, is reported making a showing for from 20 to 30 bbls. initial, but its value cannot be correctly announced until given a fair testing by the pump.

Leeper Oil Co.'s No. 1, on the H. W. Froman farm, is reported good for 10 bbls., and No. 1 on the Oma Ware farm about 10 bbls.

The White Plains Oil & Gas Co.'s No. 4 Ivo Howard 214 acres, in the Midkiff Pool, is reported dry, as is its No. 1 on the William Wade 50 acres, near the town of Ralph, a mile southeast of the Midkiff Pool.

Weir and others' test on the George Barr farm, in the western part of Ohio County and about 6 miles east of the Dimmick well, in McLean County, is reported a duster.

In the Sunnydale Pool, southeast of the Ambrose Pool, and in the Rough River country, Earl Patton's No. 4 on the Mary E. Wilson and others farm produced 100 bbls. at a depth of 421 feet. In this well a string of 357 feet of casing was set; sand from 392 to 410 feet and went to a total depth of 421 feet, shooting with 40 quarts. A gas sand was struck in this well at 392 feet right in the top of the sand.

Sunnydale Field

In the Sunnydale Field, Thresher & Shouse's test, on the Marion Baker 56-acre farm, was dry at 473 feet. George Boles and others had the same luck at a test on the B. G. Forte 12 acres, at a depth of 466 feet. Daily and Loman's Nos. 1 and 2, on the Joe Maiden farm, were both reported dry, and they are drilling No. 3. White Plains Oil & Gas Co. is drilling a test on the Everett Maiden farm, also in the same field.

Nick Shiarella, trustee, is reported to have a dry hole at a test on the Wimsatt-Feemster farm. This well was drilled by Miller and Dameron.

James C. Ellis' test on the D. W. Smith farm, in advance of the Ambrose Pool, is reported a duster. McClintock, Reed & Heckathorn's No. 1 on the R. C. Whittaker farm, is reported dry at 685 feet. Chicago Petroleum Syndicate's No. 1 on the H. and M. Phillips farm, is reported a failure at a depth of 817 feet.

Some of the new drilling wells in Ohio County practically wildcats are: Globe Oil Co. and L. C. Young's No. 1 on the Vincent Steele farm, near the town of Buford, several miles west of the Ambrose Pool; Ohio Oil Co.'s No. 1 J. R. Greer farm; James C. Ellis' No. 2 Cundiff farm; and Evans & Townsend's No. 1 on the Dan Mitchell farm.

Creek Drilling Co.'s well on the Bartlett heirs farm, south of the Ambrose Pool, is reported to be making a very good showing.

Daviess County

In Daviess County, southwest of Pellville and near the Roby Pool, the Petroleum Exploration Co.'s No. 5 on the F. F. Coomes 78 acres is reported good for 25 bbls., but is credited with an initial of 70 bbls.

Duncan & Spence's second well on the Eli Carder farm is said to show from 10 to 15 bbls. initial.

Doctor Buckner and others are credited with a dry hole in a test on the Henry Speck farm, in advance of the Roby Pool.

Barren County

Recent showing in the Glasgow Field of Barren County is not any too good, but numerous wildcat wells are under way that may help in the hunt for new production. In the Lecta Pool Hereford Baker's test on the Clark farm is credited with an initial production of only 1 bbl.

In the same pool Samson, Davis and others have a dry hole at a test on the Tom Eubank farm. The Mutual Oil Co.'s second test on the Grady farm is a duster.

Near Lucas, F. L. Esslinger's second test on the Henderson farm is a dry hole.

Allen County

In District 2, of the Scottsville Field, in Allen County, J. R. Evans and others' No. 12 well, 600 feet from the north line, 300 feet from the south line and 3,000 feet from the west line of the L. M. Stovall farm, had an initial production of 2 bbls. at a depth of 399 feet.

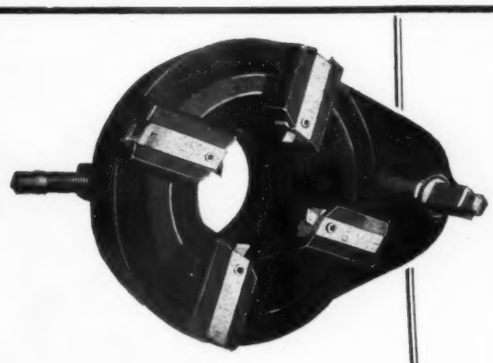
In the same district Lee Moore's No. 9 well, 600 feet from the south and west lines of the Lee Moore No. 2 farm, pumped 1 bbl. the first 24 hours at 365 feet.

W. P. Hurley's second test, 300 feet from the south line and 1,300 feet from the west line of the Riley Reed farm, came in a dry hole at a depth of 240 feet.

Field Notes

In the Bowling Green Field, of Warren County, the Miami Oil & Gas Co. is drilling a test on the J. W. Lowe farm, District 4. O. J. McGuigan & Byle are drilling a second test on the L. H. Hunt farm, in the same district.

A few miles north of the Dimmick well, near Livia, in NcLean County, in what is known as Browns Valley, in the southern part of Daviess County, Percy Jolly



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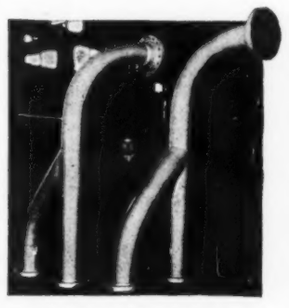

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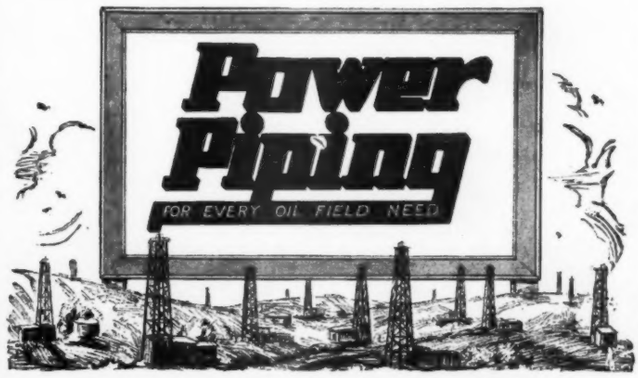

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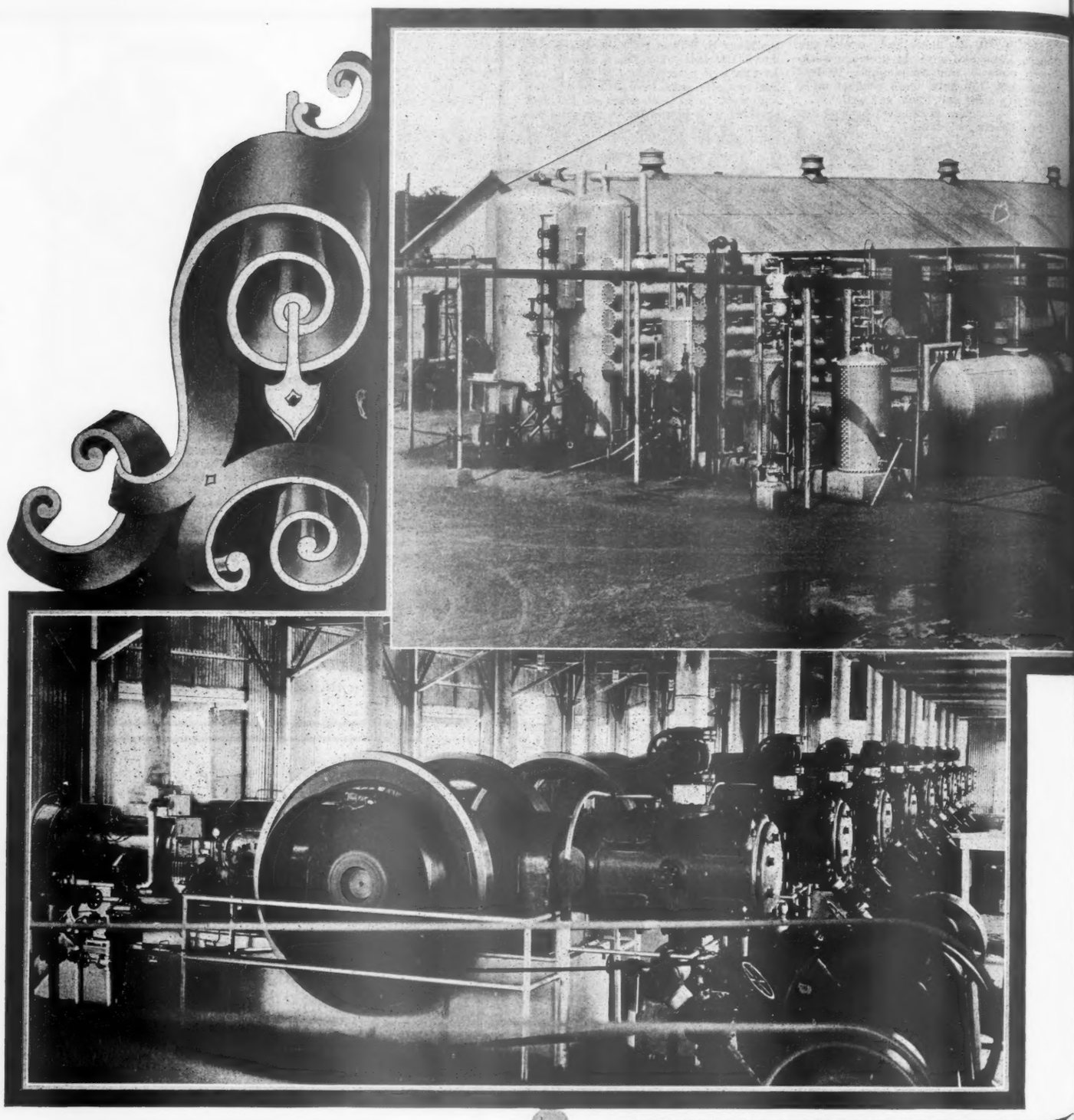

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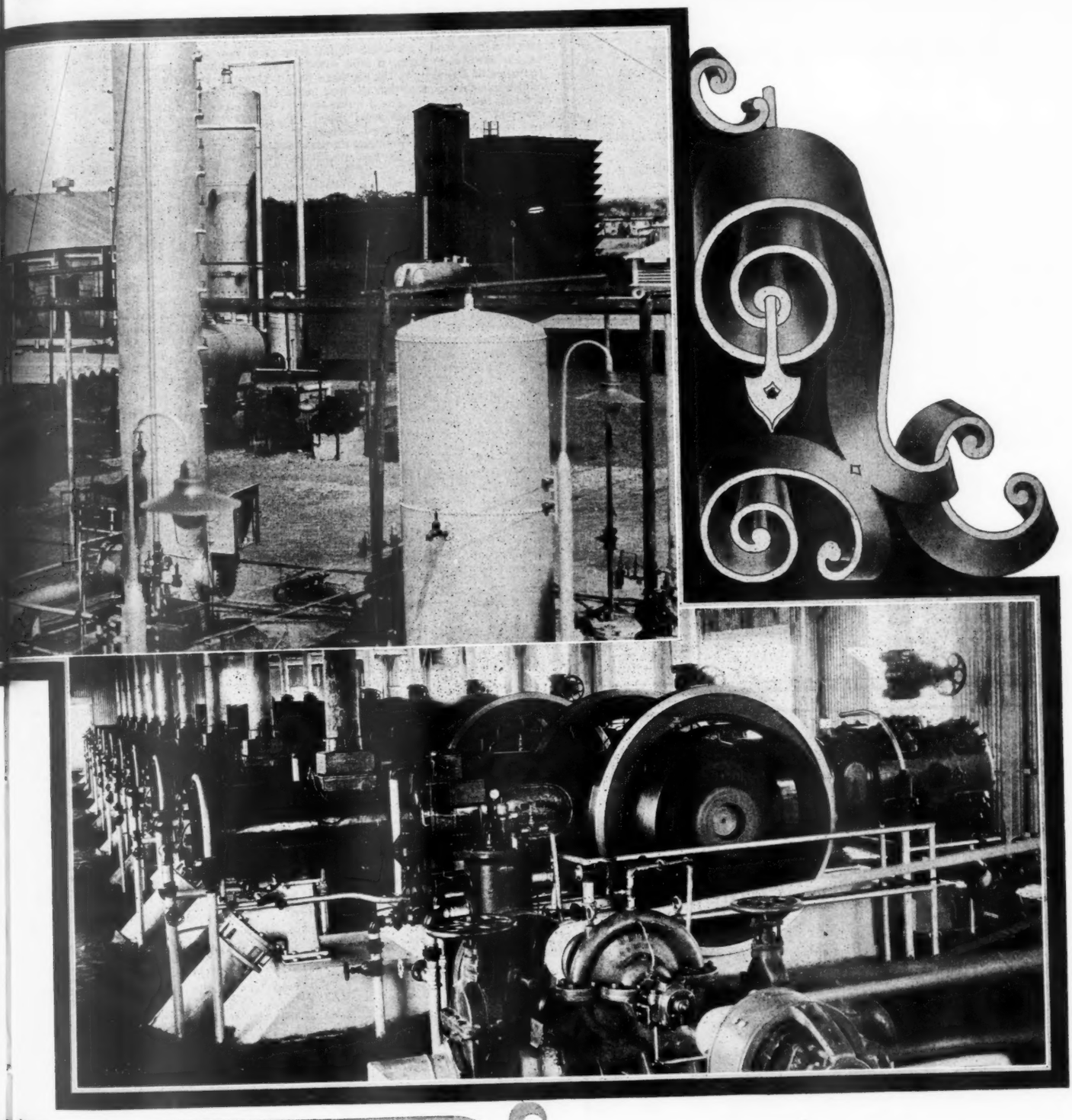

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has acquired a block of leases and is getting ready to start a test.

Reports are that the Ohio Oil Co. struck a pay sand at a depth of 155 feet on the McLimore farm, a mile south of the town of Panther, in the southern part of Daviess County, and that the well made a 5-bbl. showing and caused quite an excitement. This pay has been cased off and the hole is being drilled deeper. It has been known for years that there was oil in the shallow sand in that area. Some few years ago a well was drilled on the C. E. Alvey farm, not quite a mile from the McLimore farm, and oil was found, but it was abandoned.

TEST OF IRAQ IS 34 DEGREES BAUME

(Continued from Page 34)

prove the Kirkuk Field. The pipe line is not to be entered upon hurriedly, for another reason. It will involve not less than 600 or 700 miles of pipe; and it is not likely to cost less than £2,000,000, and probably more if due regard is paid to the considerable difficulties of transport. Here, in looking at the situation generally, we must give proper consideration to another fact. The Anglo-Persian itself, apart from its participation in the Turkish Petroleum, has a proved field already at Naft-Khaneh, in Iraq, close to the Persian frontier. With the new well at Kirkuk now an accomplished fact, any pipe line scheme in the mind of competent men would envisage the question of whether it would not be best for the two concerns, Turkish Petroleum and Anglo-Persian, to sponsor a joint pipe line to bring the oil to the Mediterranean Coast.

The Turkish Petroleum Co. is a concern with £2,000,000 capital in which up to quite recently the Anglo-Persian Oil Co. has been the largest holder, the other holders having smaller shares. The position, as recently outlined publicly, was as follows:

Anglo-Persian Oil Co.	47½%
Royal Dutch and Shell group	23¾%
Group of French companies	23¾%
C. S. Gulbenkian	5%
Total	100%

An American group, headed by Standard Oil of New Jersey, was invited to come in some years ago, and in order to ensure American co-operation and meet a wish pretty generally felt and expressed in America, this group was offered 23¾ per cent, the Anglo-Persian being willing to contribute this percentage, which amounts to 50 per cent of its own holding, on certain conditions as to a royalty on the production.

It was recently stated that an agreement on these lines had been informally come to and that the Anglo-Persian share is or soon will be 23¾ per cent plus a royalty, while the American group also takes 23¾ per cent, so that the shareholders now are as follows:

Anglo-Persian	23¾%
Royal Dutch and Shell	23¾%
American group	23¾%
French group	23¾%
C. S. Gulbenkian	5%
Total	100%

It is authoritatively stated that the Anglo-Persian, to facilitate negotiations, surrendered a considerable part of its royalty. By and large, we may estimate fairly accurately that taking into account its shareholding and its royalty the Anglo-Persian will benefit by not quite one-third of all the oil produced by the Turkish Petroleum Co.

GULF PORT SHIPMENTS INCREASE; CRUDE GAINS BUT REFINED LESS

HOUSTON, Tex., Nov. 5.—Export figures representing shipments of crude and refined products from the Gulf Coast region both showed a sharp increase in comparison with the water shipments report for the month of August. Coastwise shipments of crude showed an increase of almost 1,000,000 bbls. Coastwise shipments of refined products, however, showed a decline of more than 600,000 bbls. in comparison with the August report.

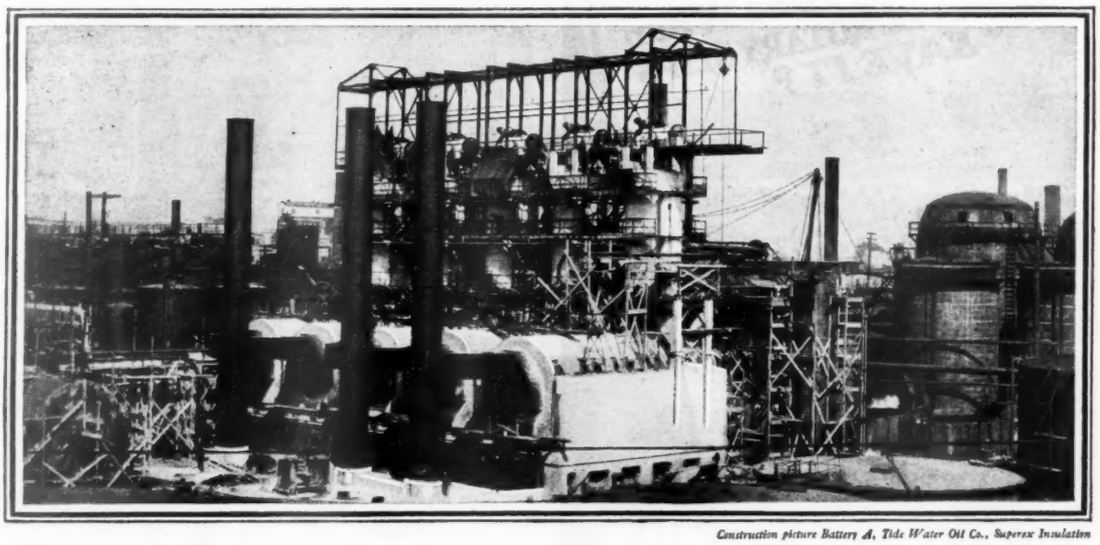
The export shipments of both crude and refined oils was approximately 556,000 bbls. more during September than in August. Crude exports gained 174,000 bbls. and refined oil export gained 381,000 bbls.

The following are Gulf Coast water shipments for September with comparative figures for August. All figures in barrels of 42 gallons.

Company, Port—	Coastwise Crude— August	Coastwise Crude— September	Export Crude— August	Export Crude— September
Standard of Louisiana:				
Baton Rouge	61,295.00	350,778.00	65,374.00	70,748.00
The Texas Company:				
Port Arthur	.....	.....	.....	.....
Gulf Refining Co.:				
Port Arthur	.....	.....	.....	.....
Magnolia Petroleum Co.:				
Beaumont	797,833.53	763,432.65[1]	.....	.....
Sinclair Refining Co.:				
Houston	439,422.08	306,505.99	.....	.....
Humble Oil & Refining Co.:				
Texas City	1,894,023.00	1,414,496.00	.....	91,605.00
Baytown	1,081,530.00	923,082.00	.....	78,673.00
Ingleside	15,591.00	507,566.00	.....	.....
Neches Terminal	133,780.00	90,678.00	.....	.....
Atlantic Oil Producing Co.:				
Atreca	221,166.88	360,492.63	.....	.....
Pasadena	44,835.45	78,193.12[2]	.....	.....
Beaumont	381,935.30	386,899.15	.....	.....
Smiths Bluff	.....	76,771.61	.....	.....
Swiftsure Petroleum Co.:				
Texas City	136,538.00	58,281.00	.....	.....
Pure Oil Co.:				
Smiths Bluff	654,220.66	749,801.78	.....	.....
Sun Oil Co.:				
Sabine Pass	.....	676,603.00	.....	.....
Totals	5,862,170.95	6,743,580.93	65,374.00	241,026.00

	Coastwise Refined— August	Coastwise Refined— September	Export Refined— August	Export Refined— September
Standard of Louisiana:				
Baton Rouge	982,395.00	985,368.00	831,899.00	1,168,319.00
The Texas Company:				
Port Arthur	1,438,431.00	1,777,984.00	301,402.00	592,951.00
Gulf Refining Co.:				
Port Arthur	2,928,479.03	2,678,151.38	136,339.22	108,076.67
Magnolia Petroleum Co.:				
Beaumont	1,176,451.69	851,421.09[1]	.....	.....
Sinclair Refining Co.:				
Houston	445,935.82	233,278.15	79,789.22	21,931.00
Humble Oil & Refining Co.:				
Baytown	1,832,304.71	1,509,950.31	1,243,681.65	1,055,377.13
Marland Oil Co.:				
Texas City	.....	.....[3]	.....	.....
Atlantic Oil Producing Co.:				
Atreco	104,914.15	95,075.63	.....	.....
Galena Signal Oil Co.:				
Houston	40,000.00	.....	28,000.00	56,000.00
Deepwater Oil Refineries:				
Houston	.....	.....	.....	.....
Keen & Woolf Oil Co.:				
Houston	.....	.....	.....	.....
Pure Oil Co.:				
Smiths Bluff	285,611.39	519,073.54	.....	.....
Totals	9,234,522.79	8,650,302.10	2,621,111.09	3,002,654.80

[1]Magnolia Petroleum Co. makes no distinction in reports between coastwise and export shipments. [2]No reports. [3]Handled through terminal of Crown Central Petroleum Corp.



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ROXANA CORPORATION IN MARKET FOR 70,000 TONS OF LINE PIPE

By B. E. V. Luty

PITTSBURGH, Pa., Nov. 7.—The Roxana Petroleum Corp. has been in the market for approximately 70,000 tons of line pipe in 6, 8 and 10-inch sizes for an oil line in Texas and Oklahoma. Various small lots of line pipe have been before the pipe trade. Nothing definite is learned as to the three of four large natural gas lines which have been under project for a long time.

Demand for oil country goods generally has been of small proportions since late in September, the active season being over. Demand for standard pipe, which has held up quite well to date, is now beginning its usual seasonal tapering off.

Pipe mill operations can hardly be estimated at much above 50 per cent of full capacity, but some producers claim higher rates than this, perhaps by a mere count of the number of furnaces running rather than consideration of their actual output.

There is a rumor of an additional 2½ per cent being given on some orders for oil country goods now, beyond the extra trimmings that went into force a month or more ago, and there is also a little talk of an extra 2½ per cent on standard pipe. While these reports cannot be confirmed, there is much reason to suspect that the recent increases in discounts from lists have not stabilized the market. This would indicate that new lists will have to be issued some time.

Finished Steel Market

The finished steel market as a whole is showing a little additional weakness practically from week to week, although clear cut declines are unusual. In bars, shapes and plates new prices were put out about the middle of September, 1.75 cents to large buyers and 1.85 cents to small buyers. The 1.85-cent price promptly failed, carloads having been available at 1.75 cents for several weeks past. Now there is much shading on plates, even down to 1.60 cents in some instances.

In sheets fresh shading has developed in blue annealed and galvanized from the general $2 a ton decline that occurred early in October This latest shading makes blue annealed quotable at 2.10 cents to 2.15 cents and galvanized at 3.65 cents to 3.75 cents, black sheets remaining at 2.90 cents and automobile sheets at 4.15 cents. All the sheet prices are well above those of last April, declines of the past few weeks representing loss of part of the large advance undertaken in May.

Chances are not small that a lower price will be made on tin plate when the new selling season opens, for deliveries over the first half of the new year. The annual price fixing date has averaged just before November 15, but if there is to be a decline the time might be later. The $5.50 basis price for 100-pound cokes, f.o.b. mill Pittsburgh district, developed in the spring of 1923 and has been reaffirmed annually since then. For three successive years, up to a year ago, pig tin advanced about 10 cents a pound a year. Lately tin has been under 60 cents, against 71 cents a year ago, and thus there is strong argument for a reduction.

Production the Same

Steel production was approximately the same in October as in September. The four months, July to October, inclusive, varied scarcely at all, when the normal expectation would be for a substantial seasonal increase, July being regularly a low month in production. This month and next would naturally show lighter operations.

The annual rail buying movement is hardly running as strong as that of a year ago, only about 650,000 tons having been taken thus far.

The valley pig iron market is practically dead, sales being very light indeed, only an occasional carload of Bessemer, with small lots of foundry iron. The market remains quotable at $18 for Bessemer, $17 for basic and $17.50 for foundry iron, f.o.b. valley furnaces, but these prices are largely nominal and might yield on competition for a good sized order. Tennesse pig iron is off $1.25, to a basis of $16. Birmingham, and Alabama iron is likely to follow. Connellsville coke remains stagnant. Since the Illinois settlement West Virginia and Kentucky coal production has decreased and western Pennsylvania will probably follow.

EASTERN FIELDS

(Continued from Page 60)

Keener sand at a test on the Frank Haus farm.

In the southeast quarter of Section 21, Westland Township, Guernsey County, W. K. McSmith and others have drilled a test on the L. O. Riddle farm through the Niagara lime and dry at a total depth of 3,340 feet. In the southwest quarter of Section 16, Jackson Township, same county, Craft and others have drilled a test on the Charlott McCoy farm through the same formation. At a depth of 3,375 feet the hole has filled up with salt water.

In Section 14, Richland Township, Holmes County, the Ohio Fuel Supply Co. has drilled through the Clinton sand a test on the Malissa Manchester farm. It is a gasser good for 5,000,000 feet. On the west side of Section 23, Salisbury Township, Meigs County, the Coal Hollow Oil & Gas Co. has started to drill another test on the R. T. and R. H. Burdette farm.

Monroe County

O. A. Jones and others have completed a test on the O. A. Jones farm, in Section 16, Warren Township, Monroe County. It is a duster. In Section 19, Summit Township, the American Natural Gas Co. had the same luck at a test on the Phillip Bey farm.

In the northeast quarter of Section 20, Harrison Township, Perry County, the Pure Oil Co. completed in the Clinton sand a test on the M. T. Moore farm. The first 24 hours after shot it produced 60 bbls.

In the southwest quarter of Section 31, Coal Township, Parry County, the Roan Oil & Gas Co. completed and shot in the Clinton sand a test on the J. M. Roan farm. It is showing for a duster and if it makes anything it will be a very light pumper.

Good Gasser in Holmes County

In Section 27, Killbuck Township, Holmes County, the Kemrow company has completed in the Clinton sand No. 3 on the Lloyd Sandles farm and is a gasser good for 2 000,000 feet.

In the southwest quarter of Section 5, Hopewell Township, Muskingum County, the Hope Construction & Refining Co. has completed and shot in the Clinton sand a test on the J. Varner farm. It produced 65 bbls. the first 24 hours.

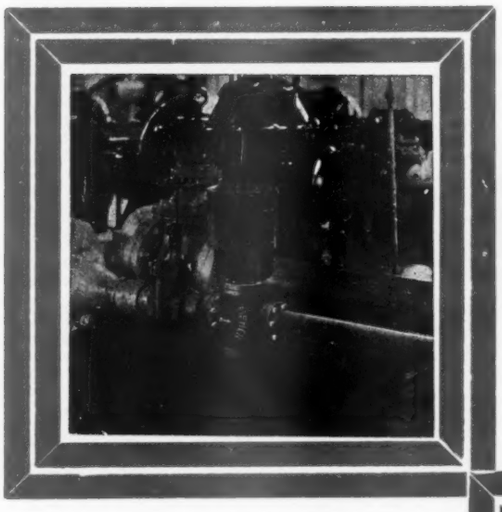
In the southeast quarter of Section 10, Hopewell Township, Licking County, the Pure Oil Co. completed and shot in the Clinton sand a second test on the Louis C. Brown farm. It produced 50 bbls. the first 24 hours. One mile north of Sharpsburg, Section 34, Rome Township, Athens County, F. M. Selby has completed in the stray sand below the Berea grit, No. 4 on the Frank Gifford farm. It is a gasser good for 450,000 feet.

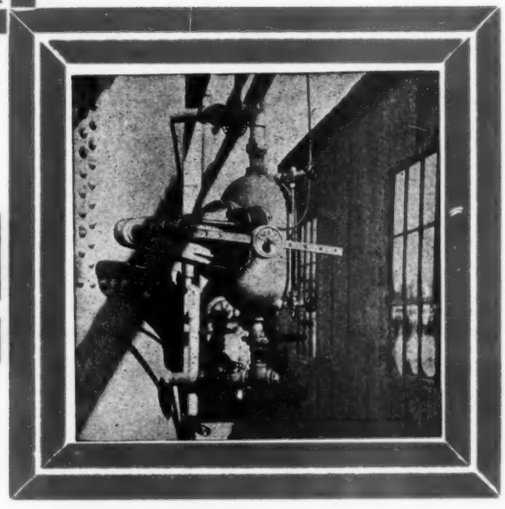
Three miles west of Chesterhill, Section 24, Marion Township, Morgan County, Charles Woodyard & Co. have completed in the first Cow Run sand No. 5 on the Charles Woodyard farm. It is a duster. In Chatham Township, E. R. Edson, Son & Co. have completed Nos. 34 and 35 on the William P. Wertz farm. Each good for 1 bbl. a day.

In the deep sand territory in southeast Ohio, in Lot 19, Section 19, Hardy Township, Holmes County, the Empire Gas & Fuel Co. has completed and shot in the Clinton sand a test on the Phillip Collier farm. It produced 50 bbls. the first 24 hours.

In the northwest quarter of Section 19, Beaver Township, Noble County, Swisher & Co. have drilled a test on the

LIQUID LEVEL REMOTE CONTROL





Another installation of a Fisher Liquid Level Remote Control is here shown in the Carter Plant, Cromwell, Oklahoma.

In the case above, the float cage is installed outside the pump house on a tank, while the valve is located inside the pump house on a discharge line of a centrifugal pump. The float cage and the valve are 30 feet apart; in some installations there is a distance between the float cage and the valve of over 80 feet.

In this controller we use the regular cage of the Type 227A to which is attached a unique liquid transmission device, having a metal bellows on each end of a sealed transmission tubing. One bellows is installed on the cage and is actuated by the raising and the lowering of the float. The other end is mounted on the valve and the bellows is connected to the valve stem, directly transmitting the action of the float to the inner valve.

Type 240, is the only device of its kind sold to the Oil Industry. Think of the advantages of this equipment—to be able to control any pump or like installation at a distance.

These remote control devices are being extensively used and are giving most satisfactory service on each installation.

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The Witte Heavy Duty Engine is made only in the 20 and 30 H.P. sizes for heavy continuous work involving running for more than twenty-four hours at a time. Complete oiling system for every bearing so arranged that you need not shut down the oil. Geared Centrifugal Water Pump for circulating water and spraying it. Tank is in base securely supported a slight distance from the foundation. You will find this a real dependable and economical engine. Now, more than ever, the need for economical, dependable power, is felt by the producer who is faced with ever increasing labor costs. Witte Throttling Governor Engines answer this problem—with the Witte you get more engine power for less cost and less upkeep.

Throttling Governor—the original and leader of the Throttling Governor type. An even, steady speed with big surplus of power for heavy loads. The Witte Engine burns kerosene, gasoline, gas oil, distillate or gas, at a fuel cost of less than 3c an hour per H.P. Simple, trouble proof, and guaranteed for a life-time of hard work.

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The Witte Engine comes completely equipped with Wico-Magneto speed and power regulator and Throttling Governor, square, protected tank and cast removable bearings. The Witte is regarded the world over as the STANDARD for real economy and life-long dependability.

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Power No. 4, pumping 16 wells, considered a heavy load, day and night, 90 ft.—12 in. triple Stanley. On May 12, 1921. Replaced by another Stanley February 1, 1924.

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William E. Cline farm into the Niagara lime to a total depth of 4,725 feet. They found 25 feet of sand at this location and only a very little show of dark oil. It will not make a paying producer.

In the southeast quarter of Section 20, Harrison Township, Perry County, William Cline and others have completed in the Clinton sand a second test on the J. L. Bennett farm. It produced 35 bbls. the first 24 hours after shot.

Licking County

In the northeast quarter of Section 2, Fallsbury Township, Licking County, the Arkansas Fuel Oil Co. has completed in the Berea grit a second test on the E. C. Howell farm. It is good for 7 bbls. a day. In the southwest quarter of Section 1, same township and county, the Goshen Oil Co. has completed in the same formation No. 6 on the C. E. Vanwinkle farm. It is good for 10 bbls. a day.

Noble and Meigs County

In the northeast quarter of Section 9, Jefferson Township, Noble County, L. A. Patton has completed in the Berea grit No. 4 on the Theodore F. Davis farm. It is a very light pumepr. In Lot 291, Sutton Township, Meigs County, Edward Calderwood and others have completed a test on the Charles E. Yost farm. It is a gasser in the Berea grit good for 500,000 feet.

Southwest Pennsylvania

In Green Township, Beaver County, the Laughner Oil & Gas Co. is through the sand at a test on the N. Bayless farm. It is a fair gasser. In Hanover Township, Hobbs & Co. have a 2-bbl. pumper at a second test on the Tilden Roche farm.

IRAQ 50,000-BARREL GUSHER OPENS FIELD

(Continued from Page 34)

subsequently to such drilling; (2) to submit to Government inspection and to pay the Government £55 per annum; (3) to accept the conditions stated in Article 38 hereof, except that the words "not later than 20 years after the execution of the lease" shall be substituted for the words "not later than 30 years after the date of this convention." Each lessee shall deposit with the Government the sum of £2,000 and in the event of any breach of his obligations under Clause (1) of the preceding sentence the said sum shall be liable to forfeiture to the Government.

Thirty per cent of the capacity of the company's pipe line aforesaid shall be available for the transportation of oil won by such lessees, at a cost to them not exceeding one-twelfth of one anna per barrel per mile.

Any plot which has been offered for competition without being disposed of may be dealt with by the company in the same manner as if it had been selected under Article 5 hereof, provided that if the company fails to carry out the obligation numbered (1) above, such plot will again be subject to competition.

In the event of termination of this convention by the Government under Article 13 hereof the Government shall take the place of the company in relation to the lessees aforesaid.

7. Subject to the due fulfilment of Article 30 hereof, the company shall maintain in good working order all borings, so long as they are economically productive, and shall limit the damage done to the surface of the lands in or upon which the said borings are situated to that which is necessary for the purpose of its operations.

8. The company shall cause to be made, and kept at its office or offices in Iraq, correct and intelligible plans of all borings, workings and operations, and shall at its own cost furnish to the Government:

(a) Within six months after the end of each year, a report on its operations;

(b) Within 30 days after the end of each month, a statement of the depth drilled in each well;

(c) Within 30 days of their completion, copies not exceeding six in number of all geological reports and geological maps made by the company's staff;

(d) Within 30 days of receipt of a written request from the Government, copies not exceeding six in number of such other maps and plans, made by the company's staff, as may be required by the Government, and of such other reports by the Company's staff as may be reasonably required by the Government; and the duly authorized representative of the Government shall have access at all reasonable times to all geological maps which are not printed. Such maps, plans, reports and statements shall be treated as confidential by the Government.

9. The company shall take all practical measures to prevent the injurious acess of water to the oil-bearing formations and of noxious waste products into the water of Iraq, and if any well be abandoned shall plug it immediately upon the casing being withdrawn.

10. In consideration of the privileges herein conceded, the company shall pay to the Government a royalty per ton of the substances (other than natural gas) saved in field storage tanks or reservoirs by the company, but for the purpose of this provision the company shall be entitled to deduct from the gross quantity so won and saved:

(a) All water and foreign substances.

(b) All petroleum distributed under Article 17 hereof.

(c) All substances used within Iraq by the company for its operations hereunder.

The royalty shall be fixed in manner following:

(1) Until a date 20 years after the completion of a pipe line to a port for export shipment the rate of royalty shall be 4 shillings (gold.)

(2) For each period of 10 years after the said date the rate of 4 shillings (gold) shall be increased or reduced by the percentages by which the profit or loss shall be greater or less during the five years immediately preceding such period than during the first 15 of the aforesaid 20 years, provided that (a) "profit or loss" shall mean the difference between the average market price per ton of the aforesaid substances and the average cost per ton of producing transporting, refining and distributing the same; (b) "average market price per ton" shall mean the total prices (ascertained as closely as possible) obtained for the products of the said substances, divided by the total tonnage (ascertained as closely as possible) of such products, and average "cost per ton" shall mean the estimated total cost of producing, transporting, refining and distributing the said substances divided by the said tonnage; (c) the minimum rate shall be 2 shillings (gold) and the maximum rate 6 shillings (gold.)

Example

	£	s.	d.
Average market price per ton during the 15 years	10	0	0
Average cost per ton during the same period	9	0	0
Profit	1	0	0
Average market price per ton during the 5 years	9	10	0
Average cost per ton during the same period	8	5	0
Profit	1	5	0

Profit has increased by 25 per cent. Therefore royalty is increased by 25 per cent, i.e., from 4/-to /5;

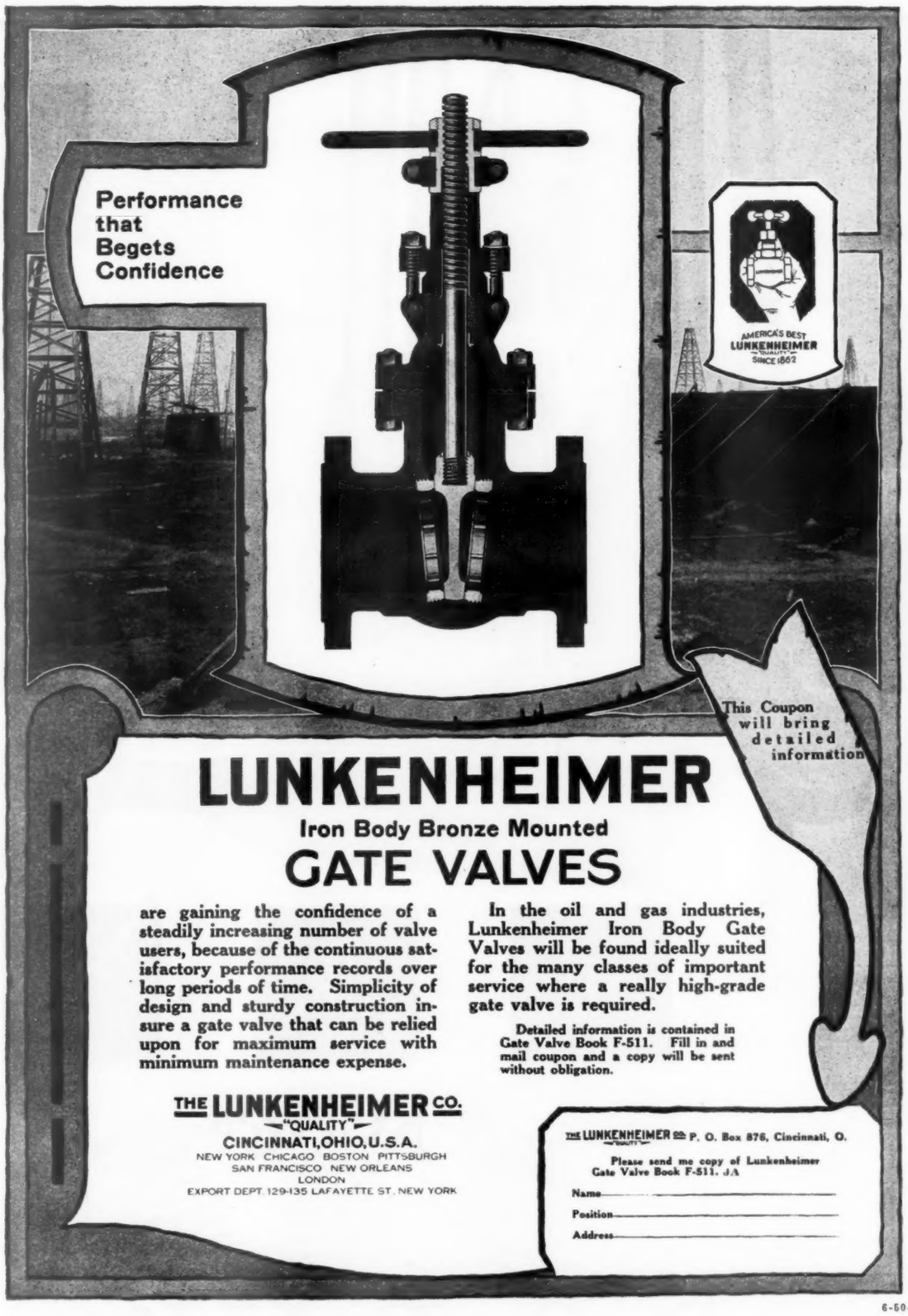
The accounts submitted to the Government for the purposes of this subsection shall be treated by the Government.

The company shall also pay a royalty of 2 pence per 1,000 cubic feet of all natural gas it sells, calculated at an absolute pressure of one atmosphere and at a temperature of 60 degrees Fahrenheit.

Section 32 stipulates that "the company shall remain a British company registered in Great Britain, and having its principal place of business within His Britannic Majesty's dominions, and the chairman shall at all times be a British subject."

INFRINGEMENT SUIT

Suit has been filed by the Hughes Tool Co. against International Supply Co., charging infringement of patents covering cone cutter for rock bit.



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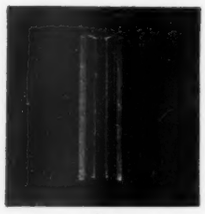
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B & R CLAMP PARTS

1

SLIPS — (or liners) — Deep grooves for cable; held in place by dovetail design — not set screws; easily removed; interchangeable; only part of the clamp that wears; extra sets of slips for any size line carried in stocks conveniently located.

2

LINKS—Special titanic design giving large factor of safety; all links are forged; no link has ever been broken in service.

3

Left hand ARM — Note the safety handle which saves many a smashed finger and makes closing and opening a very simple matter.

4

Right hand ARM—Holds clevis and Tee screw which slides freely on Clevis Pin. By simplicity of arrangement clamp can be closed and locked with one hand. Finger at top keeps the line true while hitching on.

5

BACK LINK—Designed rugged enough to give balanced strength to the entire clamp.

Three Chief ACME Characteristics

Quality — *of the best; the result of 25 years of Fishing Tool designing, manufacturing and actual operation testing.*

Service — *Complete Stocks; Accessibly Located with competent wide awake distributors with whom doing business is a pleasure.*

Value — *Unexcelled on account of economical manufacturing and fair prices scientifically based on the average length of tool life.*

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Greatest Gripping POWER

This Clamp is Insured for your protection

B & R Clamps are sold on an insurance plan that only the very highest quality would permit.

We will replace or exchange any part broken within 90 days from date of purchase, absolutely FREE and pay the cost of freight delivery.

B & R Clamps Don't Break

For Quick Delivery Mail This Order to the Nearest Acme Distributor.

B & R CLAMP PARTS

6

SLIP RETAINERS — Are an additional set of Slips; make it possible to grip the sand line and cable at same time; valuable time-saver when desired to run a bumper or knock the tools loose. Also handy to hitch onto the sand line to jerk the bailer loose.

7

BOLTS—Two long bolts serve to hold slip retainers securely in position; two short bolts connect arms at rear of clamp and act as hinges upon which the Clamp swings open and shut.

8

BACK CLAMP PINS AND CLEVIS PIN—Two pins hold the arms securely to the Back Link, yet provide flexibility of arm movement without sacrifice of strength or rigidity.

9

CLEVIS — Perfectly tapped—permitting Tee Screw to work with ease. Heavy and Strong to withstand all shocks encountered in drilling.

10

TEE SCREW — perfectly threaded; generous handle; transmits a gripping leverage to the slips in the ratio of ten to one.

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Acme Rental Tool Service Co.—Graham, Texas.
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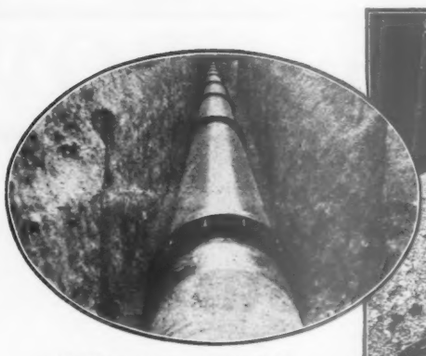

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Biturine Enamel is a complete pipe coating. It is applied hot and it requires no wrapping. Extremely tough but not brittle. Absolutely impervious to corrosive elements.

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LOS ANGELES
SEATTLE

HOUSTON
PORTLAND

NEW YORK CITY
BALTIMORE

CANADIAN FIELDS

(Continued from Page 56)

started with 12,000,000 feet a day, later sidetracked and cemented off the lost bit. Vulcan Oils No. 2, same LSD, is reported drilling in the Kootenay formation at 3,850 feet and is apparently close to the Fernie shale contact.

McLeod Oil Co. No. 3, LSD 16, Section 1-20-3w5, has resumed pumping from the Dakota sand horizon at 3,200 feet, after readjusting the gas lift. The first 24 hours showed a production of 125 bbls., this apparently including some accumulation while the well was out of production. McLeod No. 1, same LSD, is drilling at 2,955 feet with the casing run to the bottom of the hole.

Making 80 Bbls. a Day

New McDougall-Segur Oil Co. No. 2, LSD 14, Section 12-20-3w5, is reported making 80 bbls. a day from the Dakota sand at 2,646 feet. Timbers are being moved in for New McDougall-Segur No. 3, same LSD, and work on the derrick will be started next week.

British Dominion Oil Corp., LSD 4, Section 5-20-2w5, is at 6,005 feet and underreaming.

Royalite Oil Co. No. 7, LSD 3, Section 13-20-3w5, is reported at 4,160 feet and drilling. Royalite No. 8, LSD 9, Section 12-20-3w5, is drilling at 2,130 feet. Royalite No. 9, LSD 6, Section 13-20-3w5, is installing rotary outfit. This test is at 504 feet. Royalite No. 10, NE Section 12-20-3w5, is working on derrick.

In the north end of the Turner Valley, Foothills Oil & Gas Co. No. 1, SW Section 26-20-3w5, is reported at 3,150 feet and drilling with the geological formations closely corresponding to expectations. Stockmen Oils, LSD 1-2, Section 27-20-3w5, is drilling around 4,600 feet on its new hole.

Calmont Oils, LSD 2, Section 1-20-3w5, has resumed drilling at 4,175 feet after a prolonged shutdown waiting for casing. The 8¼-inch casing has been carried to 3,900 feet. Shortly before the shutdown, the test encountered a considerable show of light crude. Seneca Oils, LSD 1, Section 34-20-3w5, is reported drilling at 3,080 feet with the 10-inch casing down to 3,017 feet.

New Valley Oil Co., LSD 4, Section 6-21-2w5, is reported to have resumed drilling at 2,050 feet, after a long shutdown waiting for fuel. Home Oil Co. No. 2, LSD 14, Section 20-19-2w5, is at 2,575 feet and drilling. Advance Oil Co. No. 5, LSD 16, Section 19-19-2w5, is reported to have spudded in.

Important Decision

A legal decision of importance to operators in the Turner Valley Field and in other parts of the Canadian West has been handed down by the Supreme Court of Alberta in connection with the actions of John Creighton v. United Oils, Ltd., and Frank Starleigh v. New McDougall-Segur Oil Co. The litigation involved the validity and interpretation of reservations of mineral rights on land homesteaded before 1908. Provision for reserving these rights was made by order in council of the Dominion Government, the reservation being inserted in the patents issued by the Government. The plaintiffs claimed that such reservations when made by order in council were ultra vires, and even if legal the term "mines and minerals" did not include petroleum and natural gas rights. Justice Walsh of Calgary upheld the reservations; and on appeal by the plaintiffs a similar decision sustaining the judgment of the trial judge has been given by the Supreme Court of Alberta. It is expected the case will be further appealed to the Privy Council, which sits in February. The test case indirectly affected a considerable acreage in western Canada outside that actually involved in the litigation.

In the Moose Mountain district, Signal Hill Oil Co. No. 2, LSD 9, Section 34-23-5w5, has resumed drilling, and at last reports was drilling at 1,455 feet, and carrying down the 10-inch casing right behind the drill. At this depth the well has a little gas and some traces of oil. No difficulty is anticipated in carrying the 10-inch casing to 1,750 feet. Moose Mountain No. 1, same LSD, got a fair show of oil around 1,600 feet and another at 2,400 feet. The first sand at 1,600 feet should be reached by the end of November, the formations so far encountered indicating that No. 2 well is a little higher on the structure. A standard cable outfit is being used. The location is approximately 31 miles west of Calgary and 17 miles south of Cochrane. Work was held up for several months this summer by the necessity of using the outfit to plug Signal Hill No. 1, the old Moose Mountain No. 2 well.

In the Morley Indian Reserve area, Gold Coin Oils is at 3,858 feet and drilling. At this depth the drill had passed through a 20-foot bed of fossils identifying the bottom of the lower Benton shales, and if the formations prove normal the drill will shortly enter the Dakota (Blairmore) sandstone where production is looked for.

Moose Dome Test

Considerable interest is being shown by operators in the forthcoming test of the Moose Dome structure west of Calgary, where H. E. Ervin and associates of Denver have a location on the Pilling Syndicate acreage in LSD 1, Section 29-22-6w5. This area is a continuation of the foothill belt already productive in the Turner Valley Field. Like the Turner Valley Field, it is a deep drilling proposition. A report made for the Pilling Syndicate by Geologist J. E. Woods says:

"The structure of Moose Dome is ideal for the accumulation of oil in large quantities. There is a western dip of nearly 3 miles, whilst the eastern dip is at least 7 miles. The north dip, as well as the south dip, may both extend twice that distance. Thus the oil from every direction tends to accumulate in the upper part of the dome.

"It is a generally accepted theory that the oil comes from the Devonian. Some of the richest oil fields in the United States get oil in the Devonian. The tar sands of Fort McMurray rest on the Devonian from which the oil has migrated. So far the drilling done in Alberta shows that the oil is deep down in the limestone.

"Whilst the sides of the Moose Dome have been subject to heavy pressure and folding that may have affected the nature of the oil, a large area of the dome has been unaltered. The disturbance has been much less than in Turner Valley, where the crest of the anticline has been subject to double folding, and consequently the oil in Moose Dome should be of a heavier gravity than that of Turner Valley.

"The prospects of obtaining oil in the valley of Canyon Creek at a depth of between 2,000 and 3,000 feet are very promising and I can see no reason why oil should not be found there.

"The lower Devonian is much coarser grained than the upper Devonian and dolomitic, several bands giving an odor of hydrogen sulphide (the odor of the Turner Valley gas) when struck with a hammer. The Banff shales as well as some of the upper Devonian are sufficiently fine grained and dense to form a seal over the oil strata. Some of the upper Devonian and most of the lower Devonian is sufficiently coarse grained and porous to absorb oil and gas. It is possible that the drill will have to penetrate quite a distance into the lower Devonian to give good production.

"It is impossible to say at what depth oil will be found in the limestone, and preparations should be made to go 4,500 feet if necessary. However, it is expected that oil will be found at a much shallower depth."

Skiff Field

In the Skiff Field, near the international boundary, Devenish Petroleum No. 1, LSD 5, Section 27-5-14w4, has finished setting the 6-inch casing at 3,150 feet and resumed drilling. Devenish No. 1 last summer at 3,090 feet drilled into a thick oil sand believed to be one of the Ellis series. The well made 250 bbls. a day on a bailing test and it was claimed an air-lift pump would have doubled that production. The oil was a heavy black crude, testing around 22 Baume. The well is now being deepened for a thorough test of the lower horizons. At the least the test will be drilled to the Madison limestone, and probably some distance into that formation. O. G. Devenish, who is looking after the work, expects to complete the test by December, if not earlier. After Devenish Petroleum No. 1 has made a fair test of the lower horizons by deep drilling, Imperial Oil, Ltd., will undertake a development program on the Devenish acreage, involving the drilling of 10 tests within a period of two years.

In the Cypress Hills area near Medicine Hat, Eagle Butte Oil Fields, LSD 3, Section 31-7-4w4, is reported down 645 feet and running 15½-inch casing to the bottom of the hole. The 20-inch casing was set at 241 feet, after which there was a shut down for some weeks waiting for additional casing, the heavy fall rains in southern Alberta making it impossible to haul casing and materials over the mud roads. A 20-inch open hole was later carried to 645 feet, and after the hole is cased to that depth a 15½-inch hole will be drilled and underreamed. It is planned to carry the 15½-inch down to about 1,200 feet.

In the Pincher Creek district, southwestern Alberta, Mount Royal Oil & Gas Co. No. 1, LSD 4, Section 7-6-1w5, on the Mill Creek Dome, is reported drilling around 600 feet. A considerable gas flow has been encountered and will be used as fuel for drilling.

In the De Winton district, near Calgary, Anglesey-Lakeview No. 1, LSD 1, Section 22-21-1w5, is reported drilling at 1,400 feet. In the Highwood district, Imperial Oil, Ltd., Highwood No. 1, LSD 3, Section 36-18-3w5, is at 3,500 feet and drilling.

On the Montana side, Mill City Oils, Ltd., of Calgary has secured 120 acres in the Kevin-Sunburst Field, and will drill.

In Saskatchewan, Rosetown Leaseholding & Development Co. of Rosetown is reported to have spudded in a test in LSD 13, Section 4-31-17w3. A heavy duty rotary outfit with a 120-foot derrick is being used. E. H. Campbell of Wainwright has the drilling contract, while J. O. Williams of Edmonton is geologist for the company.

Ontario Tests

In Perth County, Ontario, Dave Laur has finished a test for the St. Mary's Cement Co. near the company's plant. The test was drilled primarily for gas and was carried through the Trenton limestone into the top of the granite at 3,174 feet. The test was probably the most systematic ever drilled in Canada, samples being taken every 5 feet and analyzed in the company's own laboratory. It is reported that though no surface water was struck, a very small show of gas was met at approximately 1,300 feet, with rock salt below it. The Trenton limestone, which was 800 feet thick, showed neither oil nor gas. None of the higher petroliferous horizons were present, according to reports.

In Wellington County, F. L. Snively of Hamilton is reported drilling a couple of tests at Puslinch Lake, near Hespeler, one being reported down 1,700 feet. The tests will be carried into the Trenton limestone.

In Lambton County, G. B. Loveday and associates of Hamilton are reported planning to drill a series of shallow tests south of Forest. There are considerable oil shale outcrops on Lake Huron at Kettle Point, north of Forest, and it is claimed an oil belt extends southward to the Petrolia Field. Near Port Lambton, on River St. Clair, Richard Conlon has aabndoned drilling operations on the Joseph Thibadeau property. At one time gas was struck in a water well drilled on this property, producing sufficient gas to supply the owner for a number of years. Two wells were drilled by Mr. Conlon in an unsuccessful effort to develop further shallow gas production.

SOUTHWEST TEXAS

(Continued from Page 49)

feet to southeast lines and 150 feet to southwest lines of lease; No. 2 Lackey, Nich Kelly Survey, 750 feet to northeast lines of lease and survey and 150 feet to northwest lines of lease, are rigging up; No. 4 Lackey, Nich Kelly Survey, 545 feet southeast of the No. 1, is drilling at 500 feet; No. 4 Clingensmith, Squire Damon Survey, 545 feet to southeast and 150 feet to southwest lines, has set surface casing and is drilling at 400 feet; No. 5 Clingensmith, Squire Damon Survey, 150 feet to northeast and 796 feet to southeast lines, is drilling at 1,200 feet; No. 6 Clingensmith, Squire Damon Survey, 150 feet to northeast lines and 495 feet to southwest lines, is drilling at 1,400 feet; No. 7 Clingensmith, Squire Damon Survey, 150 feet to SE cor., has derrick up. William F. Morgan's No. 1 Moore, G. Jasper Gilbert Survey is standing at 2,222 feet.

Kingsville Field—Kleberg

Humble Oil & Refining Co.'s No. 4 Kleberg, Section 40, Block 6, located 660 feet to east line and 810 feet to south line, at 3,144 feet, has cored showing odor of oil; No. 2 Sexauer, Section 41, Block 1, at 200 feet to south and 100 feet to east lines, is drilling at 3,220 feet.

Adams Gas Field—Medina

Southern Gas Utilities, Inc., No. 3 Schmidt, Survey 71, is location 1,447 feet to west line and 1,340 feet to south line. Mid-Kansas Oil & Gas Co.'s No. 2 Nixon, Survey 13¾, at 597 feet to north and south lines and 500 feet to east line, is rigging up. Western Gas & Fuel-Witherspoon Oil Co.'s No. 3 Adams, Block 7, located 400 feet to east line of lease, is preparing to spud in.

Refugio Gas Field—Refugio

Houston Oil Co.'s No. 2-A Rooke is drilling at 2,600 feet; No. 11 W. J. Heard, Refugio Survey, is location 508 feet northeast of the No. 10. Houston Gulf Gas Co.'s No. 2 Moody has set casing at 3,425 feet; No. 4 Heard is drilling at 400 feet; No. 4 Shelly has set casing at 3,307 feet; No. 3 Ryals is drilling at 3,050 feet.

White Point Area—San Patricio

Houston Oil Co.'s No. 1 Baldwin, Roos Survey, Block 5, located 250 feet to west line and 200 feet to south line, is location; No. 2-A Sun, Block 8, same survey, at 646 feet to west line and 843 feet to south line, is drilling; No. 1 Humble is ready to drill in; No. 2 Humble, Roos Survey, Block 7, located 167 feet to SE cor., is drilling at 2,318 feet in gas sand; No. 3 Humble, same survey and block, at 200 feet to north line and 250 feet to east line, has derrick up. Mission Drilling Co.'s No. 1 Harwood is drilling at 2,305 feet after testing small amount of gas and salt water at 2,135 feet; No. 1 Hunter has been spudded in; No. 3 Cage is location 167½ feet to NW cor. Sexat Oil Co.'s No. 1 Hunter is location; No. 6 Cage, Rachal Survey, 1,500 feet south of No. 5, is standing at 2,360 feet; No. 9 Rachal is drilling at 1,450 feet; No. 12 Rachal is ready to drill in at 2,312-16 feet; No. 7 Dunn, C. P. Rachal Survey, is location 150 feet to north line and 811 feet to east line.

Nueces County Gas Field

Sexat Oil Co.'s No. 4 Dunn, 300 feet south of Bay, has set casing at 2,300 feet; No. 2 Meaney, 730 feet to east line and 218 feet to south line of tract, is coring at 3,500 feet; No. 2 Weil is shut down at 2,360 feet.

SOUTHWEST WILDCATS

(Continued from Page 49)

2,360 feet. National Oil Co.'s No. 1 Ball, Survey 16, located 450 feet to north line and 150 feet to east line, is building roads to location.

Hidalgo County

Queen City Oil & Gas Co.'s No. 1 Adams, Lot 1, Block 82, at 3 miles north of Mercedes, is fishing at 2,120 feet.

Jim Hogg County

Paesano Oil Syndicate's No. 1 Campbell, Las Vivoritias grant, is drilling at 2,148 feet. O. W. Killam's No. 1 Canales, Baluarto grant, is drilling at 2,200 feet. Holden and others' No. 3 Jones, Share 27, Block 136, 330 feet to east line and 440 feet to north line, is standing at 2,548 feet.

Starr County

Clark & Woodruff's No. 1 Kelsey, Porcion 76, is standing at 200 feet. J. E. Harston's No. 1 H. Guerra, Survey 43, located 660 feet to south line and 1,320 feet to east line, is standing at 300 feet waiting on fuel. T. W. Foliz and others'

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No. 1, Survey 301, located 150 feet to northwest lines and 2,400 feet to west lines, is rigged up. Commonwealth Oil Co.'s No. 1 Garcia, Survey 538, at 2,722 feet to south line and 2,182 feet to west line, is shut down at 1,600 feet waiting to test.

Zapata County

Henne, Winch & Fariss' No. 1 A. Martinez, Survey 120, located 1,391 feet to east line and 2,025 feet to south line, has spudded in and set 10-inch surface casing at 66 feet.

Bexar County

Allen Burnam's No. 1 Ward, A. A. Gardiner Survey, 1,200 feet to east line and 325 feet to south line, has shut down at 318 feet.

Bastrop County

Noack & Laning's No. 1 E. Boemer, Isaac Casner League, 150 feet to NE cor., is making location. Fred Adams' No. 1 E. E. Roberts is drilling at 1,825 feet.

Bee County

D. Hewitt's No. 1 G. A. Ray, G. A. Ray Survey, 1½ miles west of Pettus, is shut down at 2,247 feet. Nichols & White's No. 1 Hicks, Block 19, NW cor. is shut down at 1,408 feet. Red Ant Oil & Gas Co.'s No. 1 Perry & Chesnut, B. Q. Hadley Survey, 450 feet to east line and 1,600 feet to south line of farm, is drilling at 805 feet.

Blanco County

C. W. Bates is making location for test 8 miles east of Blanco City. Miller Creek Leasing Corp.'s No. 1 Glasscock, Survey 50, at 150 feet to CEL, is to spud in soon and is building roads to location.

Caldwell County

Calco Petroleum Co.'s No. 2 Thomas, 600 feet southeast of the No. 1, is standing at 1,820 feet. Detex Oil Co.'s No. 1 Hardeman, 4 miles north of Luling, is shut down at 3,075 feet. Martin & Wright's No. 1 Mat Blackwell, 1 mile east of Burdette wells, is shut down at 26 feet. Ratcliffe's No. 1 J. L. New, James Hines Survey, 150 feet to west line and 600 feet to south line, is standing at 2,914 feet. Sutton & Smith's No. 1 Carter, Green Hindes Survey, 150 feet to CWL, is at 2,597 feet; No. 2 Carter is location 300 feet east of No. 1.

DeWitt County

J. W. Allen's No. 1 Reoder is location 12 miles west of Yorktown. Empire Southern Oil Co.'s No. 2 Smith, Survey 3, located three-quarters of a mile west of No. 1, is ready to bail at 2,860 feet. McNeil & Matthews' No. 1 Toland, A. Dillard Survey, 150 feet to north line and 300 feet to east line and southwest of the company's No. 1 Kaiser, is drilling at 600 feet. Williams & Gates' No. 1 Gohmert, G. W. Brooks League, 175 feet to north line and 300 feet to east line, is shut down at 760 feet.

Dimmitt County

Humble Oil & Refining Co.'s No. 1 City National Bank, Survey 654, located 700 feet to north line and 2,000 feet to east line, is drilling at 4,202 feet in hard rock.

Frio County

F. A. Lain and F. A. Brown's No. 1 Edwards, Hooper & Wade Survey, 920 feet to center of north line, are shut down temporarily at 900 feet.

Fayette County

E. A. Bainbridge's No. 1 is location in the Lewis & Toy Leagues with derrick lumber on the ground. E. A. Williams & Co.'s No. 1 is location southeast of LaGrange.

Goliad County

C. W. Simpson's No. 1 Ideus, W. H. Pendleton Survey, 156 feet to north line and 540 feet to west line, is coring at 1,600 feet showing little gas.

Gonzales County

Bristol Oil & Gas Co.'s No. 2 Denman, A. Zumwalt Survey, is shut down at 807 feet. Gonza Petroleum Co.'s No. 1 Elder is standing at 1,636 feet; No. 2 Elder, Block 11, is shut down at 1,250 feet; No. 1 Sinclair, 4 miles northeast of No. 2 Elder, is shut down at 1,200 feet. L. L. Jones' No. 1 Campbell, Moore & Bridges Survey, is shut down at 100 feet. L. P. Unkel's No. 1 Hampton, C. H. Jaeger Survey, 240 feet to southwest and 120 feet to southeast lines, is drilling at 640 feet. H. B. West's, trustee, No. 2 Preston, W. W. Pace One-Third League, P. R. Whiteney Survey, is drilling at 700 feet.

Guadalupe County

F. A. Lain's No. 1 Weinert, W. K. Estell Survey, 150 feet to CNL, has completed water well and will go into oil well at 3,004 feet and resume in few days.

Hays County

J. E. Rodgers' No. 1 Hohenburg, 2½ miles east of San Marcos, is drilling at 1,961 feet.

Karnes County

Reynosa Oil Corp.'s No. 2 Butler, Block 43, located 1,000 feet south of No. 1, is working at 1,947 feet.

Kerr County

Walker-Van Duyn's No. 1 Barfield, B. B. Peck Survey, 4,700 feet to north line and 450 feet to east line, is location.

Kinney County

Havelin Oil Co.'s No. 1 Weatherby, Section 20, Block 5, is shut down at 4,365 feet. Stephens and others' No. 1 Clamp, Survey 346, is shut down at 1,070 feet showing little gas.

Lavaca County

M. L. Benedum's No. 1 Russek, J. G. Reynolds Survey, John Linn One-Third League, 1,060 feet to west line and 210 feet to south line, is at 3,275 feet.

Live Oak County

Delta Oil Co., Inc.'s No. 1 McNeil, Jane Curry Survey, is shut down at 1,010 feet. F. A. Lain is making location for test 3 miles north of the Cartwright Field. Houston Oil Co.'s No. 19 Cartwright, W. J. Cannon Survey, 1,500 feet northeast of No. 17, is rigged up; No. 20 Cartwright, M. Trudo Survey, SE cor., is drilling at 1,113 feet in hard shale; No. 21 Cartwright, J. M. Colchado Survey, 2,900 feet northeast of No. 18, is spudded in; No. 22 Cartwright, F. Bottilo Survey, is location 2,450 feet northeast of No. 19. Encino Oil Co.'s No. 1 Stewart, Ezzo McWhorter Survey, 500 feet south of Largarto Creek and 500 feet west of Nueces River, is drilling at 870 feet. Morgan-Roxana's No. 1 West estate, L. A. Fant Survey No. 2, located 1,300 feet to southwest lines and 900 feet to northeast lines, is drilling at 1,780 feet. Roy Shupman's No. 1 W. W. Kolb, Tract 2,420, Block 44 of the Simmons Subdivision, has set casing at 1,299 feet.

Medina County

F. Banderet's No. 1 Mofield, Survey 532, located 550 varas to east line and 950 varas to north line, has derrick up and rig on the ground. R. P. O'Brien's No. 1 Nixon, Survey 531, is being worked on at 1,080 feet.

Maverick County

Ryan Consolidated Petroleum Co.'s No. 1 Indio, Survey 14, center, is drilling at 2,410 feet. Rycade Oil Corp.'s No. 1 Chittim, Section 129, Block 7, is again able to get returns at 4,295 feet; No. 2 Chittim, Section 158, Block 7, is drilling at 1,430 feet; No. 2 Sullivan is sidetracking at 5,132 feet.

McMullen County

Houston Gulf Gas Co.'s No. 2 Fisher, 1,700 feet south of No. 1 and 600 feet west of Frio River, is setting casing at 1,756 feet.

San Patricio County

National Oil Co.'s No. 1 J. E. Sullivan, J. C. McMullen Survey, 500 feet to SW cor., is shut down at 1,135 feet in gumbo for fuel. George B. Pickett's No. 1 J. E. Garrett, Block 23, at 1,500 feet to west line and 1,000 feet to south line, is drilling at 2,610 feet; No. 1 Whitworth is location in NW NW Section 60 of the Coleman Fulton Pastore Co. Survey. John Sigmund's No. 9 Robinson is setting casing and cementing to make test.

Travis County

Roy Clark and others' No. 1 Carl Jacobson, 500 feet to east line of farm and 150 feet to south line of north 72 acres of the 147-acre farm, is moving on. Frank Gommillion and others' No. 1 well has been spudded in.

Uvalde County

Pure Oil Co.'s No. 1 J. D. Smythem Survey 687, located 740 feet to north and 146 feet to east line of SE cor. of Survey 20 and in SW cor. of the county, has derrick up and is laying 2 miles of water lines.

Victoria County

Humble Oil & Refining Co.'s No. 1

Welder is location in the SW cor. of the Welder ranch.

Val Verde County

A. M. Blume's No. 1 Moore, Survey 184, is standing at 2,900 feet. Crusoe Williams' No. 1 Holman, Section 5, is shut down at 2,940 feet for casing. Douglas Oil Co.'s No. 1 Sellers, Section 82, is drilling at 4,062 feet in gray lime. East Del Rio Oil Co.'s No. 1 Russell, Section 183, drilling at 3,200 feet in brown lime. Independent Operator's No. 1 Whitehead, SE SE Section 30, Block 4, is shut down at 3,925 feet. Magnolia Petroleum Co.'s No. 1 Whitehead, Survey 81, is drilling at 487 feet in shale and shell. O. O. Owens and others' No. 1 Mills, Section 128, Block 1, is standing at 2,820 feet and showing gas. W. V. Traves' No. 1 Wilson, Section 115, Block E, is moving on.

Zavala County

J. G. Pundt's No. 1 West, Fuentes Survey, NW cor., is waiting on casing at 936 feet. Western Gas & Fuel Co.'s No. 1 West, northern part of county, has resumed drilling at 228 feet.

LA.-ARK. WILDCATS

(Continued from Page 46)

Crain, in Section 1-17-14, during the week. The Richland gas district has 19 under way, 4 being new locations made this week by Gulf Refining Co., Moody & Seagraves and Southern Carbon Co.

Lion Oil Refining Co., which drilled three wildcats in western Union County along the Columbia County line earlier this year in territory where some of the drilling just prior to the discovery of El Dorado was done, testing dry in all three, has gone into the opposite end of the county and made location for a well about 5 miles northeast of Lawson, scene of more or less excitement a year ago when the Lawson-Urania area loomed as a potential gas field of major proportions. The company has derrick pattern on location for No. 1 Horn in the NW SE Section 17-17-13.

Bossier Parish will probably furnish the next test of a wildcat, however, as Woodley & Collins are arranging to make a test in No. 1 Lincoln Land Co., Section 21-16-10, where they got an oil show at 2,540 feet. A prior test of sand from 1,638-42 feet was salt water. Location is in the vicinity of three tests by Lakeside Oil & Gas Co. in 1922 which were completed as big gassers on the edge of Lake Bisteneau in the south end of the parish and about 8 miles east of Elm Grove production. Lake Bisteneau Gas Co. is drilling on a state lease in Section 16-16-10, but has not gone much below surface casing depth.

Benson Oil Co. has been formed and taken over Sebastian and others' No. 1 Wolff in Section 3-10-13, about a mile east of the town of Benson in DeSoto Parish, and will drill a wildcat which, because of showing in a well drilled in 1920-21, will probably be watched rather closely. This old well blew out with big gas pressure, caught fire and cratered, eventually bridging and killing itself, but while burning it became apparent from the thick, greasy-looking clouds of smoke that it was making some oil as well as gas. That territory was geologized late in the last decade by Huntley and other ranking geologists and Huntley at one time had considerable acreage there. For a time it appeared that it was to be pretty well drilled but El Dorado and Haynesville coming in early in 1921 offered more definite reward and Benson was deserted.

NORTH LOUISIANA

Bienville Parish

Lake Bisteneau Gas Co. finished repairs to rig on No. 1 State, Section 16-16-10, which had it shut down at 210 feet and is in a rock at 300 feet. Louisiana Petroleum Co.'s No. 1 Hays, Section 18-16-5, is shut down for water at 1,680 feet.

Bossier Parish

Doern and others' No. 1 Bollinger, Section 9-22-11, is drilling at 2,610 feet. H. S. Goodwin, trustee's, No. 1 Curtis in Section 2-16-13, tested dry with Johnson testing tool at 1,810 feet and is drilling at 1,900 feet. Sales & Walker's No. 3 Bollinger Section 30-23-11, is shut down waiting orders after a salt water test with a show of oil and gas at 3,083 feet. Walker and others are drilling No. 1 Antrim, Section 28-22-13, at 1,890 feet. Woodley & Collins are arranging to make a test of an oil show at 2,540 feet in No. 1 Lincoln Land Co., Section 21-16-10.

Catahoula Parish

S. D. Hunter's No. 2 Tensas Delta, Section 21-9-7e, began drilling October 28 and has set 12½-inch surface string at 105 feet. Lochnager Oil & Gas Co. is still fishing for a lost drill stem in No. 2 Beasley, Section 26-9-6e, total depth 3,141 feet, and No. 1 McMillan, Section 29-9-6, is rigged up ready to drill. Standard Oil Co. has rig up for No. 1 Tensas Delta, Section 23-8-5e.

Claiborne Parish

El Dorado Chief Oil Co.'s No. 1 Jones, a location 140 feet south and 66 feet east NW cor. SW SE Section 8-20-6. Magnolia Petroleum Co. is drilling shale and lime at 4,098 feet in No. 1 C. C. Lee, Section 16-22-8, south of Haynesville production.

Grant Parish

Holmes and others have abandoned location without drilling after building derrick for No. 2 Swope in Section 18-9-1e. Swope and others have been shut down at 1,607 feet on No. 3 fee, Section 18-9-1e, since October 20. They tested salt water in 5 feet of sand; No. 5 fee in the same section is still a derrick.

Webster Parish

S. A. Lane is fishing for bit lost at 620 feet in No. 1 Miles, Section 24-17-9.

West Carroll

Palmer Corp. has rig up to drill No. 1 White, Section 2-19-10e. Phillips Petroleum Co. fished out a joint of drill stem and bit twisted off at 2,674 feet in No. 1 Marion, Section 32-20-9e, and is drilling red shale at 2,780 feet.

Winn Parish

Ohio Oil Co. is drilling at 1,747 feet in No. 2 Rolen Account 1, Section 5-12-1w, and has been shut down for two weeks on No. 1 Edenborn, Section 31-10-4w, on account of lack of water, total depth 1,813 feet. H. M. Roark made 70 feet through hard lime during the week in No. 3 Southern Minerals Co., Section 19-11-3, total depth 450 feet.

ARKANSAS

Union County

Champagnolle—Garrett-Modisette Drilling Co. started drilling October 27, set 12½-inch at 125 feet and is drilling at 1,600 feet on No. 1 Gregory, Section 10-17-14. E. M. Jones' No. 1 Crain, Section 2-17-14, spudded October 30 and is down 115 feet. Magnolia Petroleum Co. set 13½-inch at 326 feet and is drilling at 1,150 feet on No. 2 Carroll, Section 1-17-14. Ohio Oil Co. began drilling No. 3 Crain, Section 1-17-14, October 27 and is drilling below 100 feet; Nos. 4 and 5 Crain are derricks, the latter being a new location 200 feet north and east SW cor. NE SW Section 1-17-14; No. 1 W. Pumphrey in the same section began drilling October 27 and has 10-inch set at 310 feet. Rovenger Corp.'s No. 1 McCain, Section 2-17-14, being deepened from 2,834 feet where it was the discovery well of the district, cored gumbo at 3,001-2 feet and is drilling at 3,004 feet.

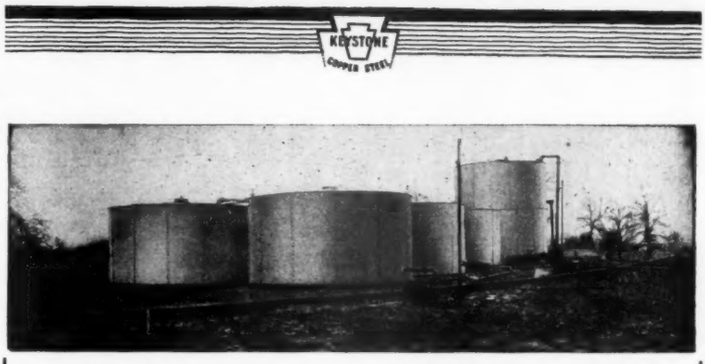
Miscellaneous—Grimes Brothers have a derrick up for No. 1 Williams, 330 feet north and east SW cor. NW SW Section 8-18-14. W. R. Keever's No. 3 Ezell, Section 12-17-15, is waiting on standard rig with 600 feet of fluid in the hole from 5 feet of sand at 2,131-36 feet; No. 4 is rigging up and No. 5 has derrick pattern on location in the southwest corner NW SE of the same section. Lion Oil & Refining Co. has derrick pattern on location for No. 1 Horn, 330 feet south and east NW cor. NW SE Section 17-17-13. Pitcher and others are trying to kill a fresh water flow topped at 320 feet in No. 1 Arkansas Timber Co. in Section 21-17-11.

Nevada County

McDonald and others' No. 1 Pell, Section 9-15-22, is reaming to set casing for a test of an oil show in sandy shale from 1,982-95 feet, total depth 1,997 feet.

Calhoun County

Ginther and others' No. 1 Stout Lum-



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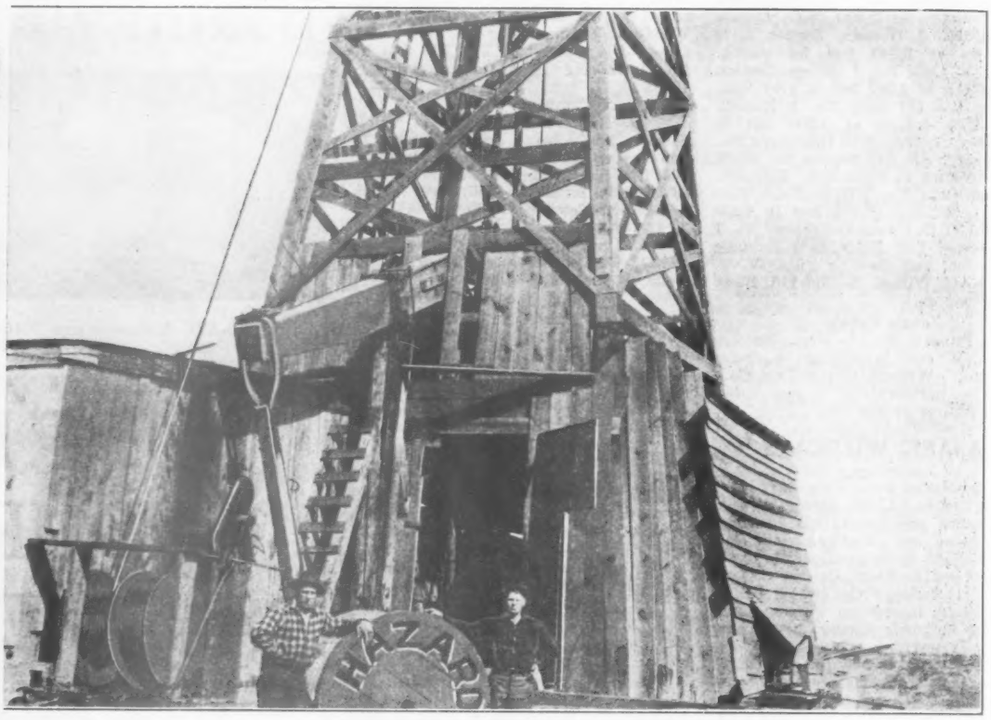

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HAZARD

ber Co., Section 3-14-16, is shut down for repairs to rig, total depth 2,172 feet.

Columbia County

The Texas Company is drilling gummy shale at 1,220 feet in No. 1 Alexander, Section 8-17-19.

Lafayette County

Kensaw Syndicate has reached contract depth of 3,100 feet in No. 1 Kensaw, Section 31-19-24, without having obtained a show of any sort and the rig is shut down waiting orders.

Miller County

Guest and others' No. 1 Saunderson, Section 14-15-26, began drilling October 26, set 10-inch at 69 feet and is drilling at 850 feet. Lenz and others are shut down for fuel on No. 1 Mann, Section 22-15-26.

EAST TEXAS

Harrison County

J. R. Bahan tested dry at 2,867 feet in No. 3 Hickman, E. Pollock Survey, and is drilling at 2,903 feet. Ford and others have rig up on No. 1 Furrh, 1,033 feet south and 250 feet west NE cor. E. M. Jenkins Survey. Test at 958 feet on C. Lyons and others' No. 4 Bryson on the T. D. Wilson Survey was dry. Magnolia Petroleum Co. is drilling broken lime at 2,382 feet in No. 1 Will Anderson in the J. Womack Survey; No. 2 J. M. Trosper in the J. H. Harrison Survey is shut down waiting orders at 2,862 feet. Simms Oil Co. is drilling No. 2 Z. Abney, James Bryant Survey, at 1,652 feet. State Line Oil & Gas Co. is down 1,640 feet on No. 5 C. M. Abney estate, E. Little Survey, and is drilling. A. L. Waller and others set 10-inch at 122 feet in No. 1 J. M. Bryson, W. R. Anderson Survey, and are drilling at 500 feet.

Marion County

William Gross and others are shut down at 2,391 feet on No. 1 Baker, John French Survey, waiting for standard rig.

Panola County

Bethany Oil & Gas Co. is testing No. 1 Burns, W. A. Birdson Survey, at 1,015 feet and has set 6-inch at 1,003 feet in No. 2 Richardson, J. Yarnall Survey. Cranfill & Reynolds' No. 1 A. Mays, Jane Thorpe Survey, is shut down waiting orders at 1,981 feet. Magnolia Petroleum Co.'s No. 2 Sarah Davenport, Jessie Dunlap Survey, is drilling hard sand and lime at 2,266 feet; No. 1 Lila Fletcher, 6,100 feet east and 4,300 feet north SW cor. B. C. Jordan Survey, is rigging up; No. 2 John Jernigan, 2,200 feet south and 330 feet west NE cor. Jane Thorpe Survey, is a derrick, as is No. 2 Sol Oden, 575 feet north and 500 west SE cor. Sol Oden, 50 acres in E. F. Mitchell Survey; No. 1 J. M. Trosper, 330 feet north and west NW cor. Anderson Survey in James Shadoin Survey, is coring at 1,976 feet, and No. 3 on the same lease is a location 700 feet north and 600 feet east NE cor. Jane Thorpe Survey in James Shadoin headright. D. Thompson's No. 1 Crenshaw in the John Womack Survey, tested dry after a small oil show at 1,921 feet and is drilling at 2,021 feet.

Shelby County

Magnolia Petroleum Co.'s No. 1 Pickering Lumber Co., W. J. Crane Survey, is shut down waiting orders at 3,025 feet. Sebastain and others are arranging to core No. 1 Pickering Lumber Co., T. F. Polley Survey, at 2,923 feet after a show of oil and gas.

MISSISSIPPI

Chickasaw County

Hightower & Goldstein's No. 1 Davis in the center of the NE Section 20-13-3, has set 10-inch at 296 feet and is drilling at 400 feet.

Jeff Davis County

Bassfield Oil Co.'s No. 1 Burkett, Section 14-6-18, is drilling at 2,450 feet.

Lauderdale County

Baker & Adkins' No. 1 Gunn, Section 13-7-16, tested dry at 2,186 feet and is drilling a green sand at 2,198 feet.

Lee County

J. P. Evans' No. 1 Whiteside, Section 16-9-7, set 10-inch at 518 feet and is drilling at 1,003 feet. Lee County Petroleum Co.'s No. 1 Hickman, Section 12-8-6, is drilling at 492 feet.

Monroe County

Amory Petroleum Co. is fishing for cable tools in No. 1 Dill, Section 12-13-18, total depth 2,270 feet, and is cleaning out No. 1 Hall, Section 8-13-17, total depth 2,404 feet, where it stood shut down for some time. Mawk Oil Co.'s No. 1 Searcy, Section 22-13-7, is shut down at 533 feet. Natural Gas & Fuel Corp.'s No. 1 Rye, Section 22-15-17, is drilling at 2,349 feet.

D'Lo Development Co.'s No. 3 fee, Section 7-3-4, Rankin County, is fishing for drill stem at 3,220 feet.

Magic City Oil Co.'s No. 1 fee, Section 36-3-12, Stone County, has resumed operations after being shut down for some time and has 8-inch casing set at 2,250 feet.

Cumberland Oil Co. is drilling No. 1 Hesterly, Section 15-21-11, Webster County, at 1,740 feet.

CALIFORNIA FIELDS

(Continued from Page 55)

holds extensive acreage. The Superior's new location is about 9 miles southeast of Delano and 10 miles northwest of the Mount Poso Field. The Standard recently leased 1,280 acres southeast of McFarland as protective acreage in the event that the Superior is successful in developing production. San Luis Obispo County is becoming quite popular with wildcatters and this section may bear watching. The Union is about ready to spud in No. 1 Rust at Huasna where the company has a perfectly closed anticline which looks exceptionally good from a geological standpoint. The Miley Exploration Co. is erecting a rig out on the Carissa Plains and actual spud should be made soon. This area also looks interesting.

Southern California Wildcats

Developments in the Hawthorne-Lawdale area in Southern California did not show any change for the better and the failure of the San Clemente Oil Co. to secure a satisfactory water shut off does not look any too favorable. J. E. O'Donnell's wildcat looks doubtful so far as development of commercial production is concerned, although neither is definitely out of the running as the area calls for deep drilling. The Hurst Oil Corp.'s No. 1 Simons in the town of Inglewood is one of the most interesting wildcats under way in the Los Angeles Basin at present and, while it is not yet deep enough to pick up the pay, it may bear watching as several surface showings correlate very closely with similar indications in the Inglewood Field. Monterey Park is getting a conclusive test and the Monterey Park Petroleum Co.'s No. 1 Browning in this area has possibilities. The Associated is well under way with a new wildcat at Pica but it will probably be several weeks before the projected depth is reached. The Shell encountered a little gas in its No. 1 Mission at San Fernando and, while a string of 10-inch was landed this was done for protective purposes only.

NORTH LA.-ARK.

(Continued from Page 46)

drilling October 28, set 13½-inch surface string at 140 feet and is drilling at 630 feet.

Haynes Brothers cemented a cavity at 3,093 feet in No. 2 Spell, Section 15-21-15, but ran into more grief, losing returns at 2,940 feet. Magnolia Petroleum Co. has made location for No. 21 Dillon, in Section 23-21-15; No. 8-A Hampton, Section 12-21-15, is drilling lime at 2,981 feet; No. 21 Robertshaw, Section 22-21-15, is arranging to test at 3,698 feet and No. 22 Robertshaw in the same section is drilling in the chalk rock at 1,442 feet. Ohio Oil Co.'s No. 25 E. K. Smith, Section 12-21-15, one of the deepest holes yet drilled in Caddo, has changed back to rotary rig and is drilling at 4,838 feet. The Palmer Corp. has cemented a string of 6-inch pipe at 3,592 feet in No. 1 Sellington, Section 17-21-14, east of the Pine Island Trinity area.

The Texas Company's No. 49 Caddo Mineral Lands, Section 23-21-15, is drilling lime at 3,683 feet; No. 50 Caddo Mineral Lands in the same section is shut down waiting orders after a salt water show at 2,665 feet, and No. 51 is drilling at 3,660 feet. The same company's No. 6 A. Herndon, Section 14-21-15, was dry after a show of oil and gas

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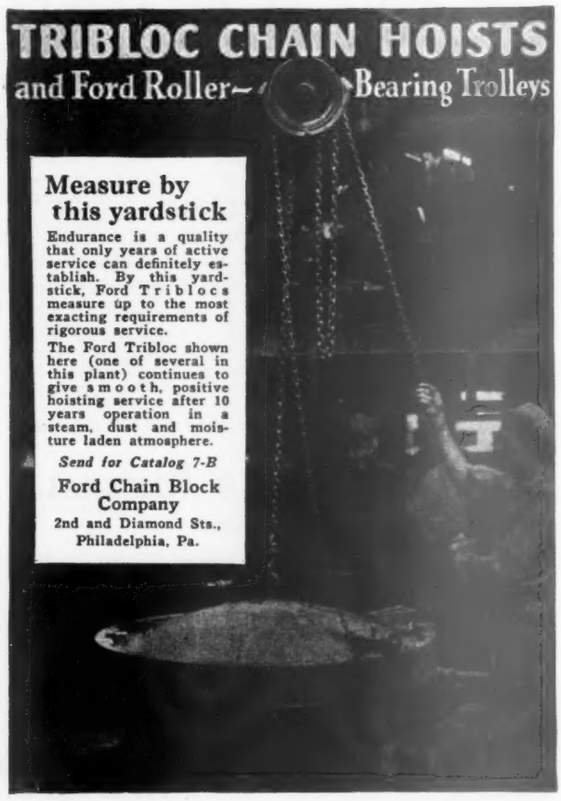
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and will go deeper, corrected depth being 3,913 feet, previously reported as 3,943 feet. Attempts to recover 4½-inch liner lost at 3,690 feet in No. 10 Mabry, Section 15-21-15, failed and the pipe is being milled out. Tubing lost in the hole at 3,050 feet has been fished out of No. 14-B Noel, Section 14-21-15, and the well will be equipped with air lift. No. 19 D. H. Raines, Section 15-21-15, is drilling lime at 3,943 feet after bailing a little oil and making some gas at 3,786 feet.

Greenwood District

Belchic & Laskey have cemented 6-inch casing in No. 3 R. T. Sharp, Section 10-18-16, at 890 feet. W. H. Cross has made location for No. 1 State Line Hunting and Fishing Club, 760 feet west and 550 feet south of the center of Section 17-17-16, and has derrick up. Greenwood Production Co.'s No. 1 McCutcheon, Section 15-17-16, is drilling lime at 2,883 feet, one of the deepest holes in the new gas area of Caddo.

Magnolia Petroleum Co. cored shale at 1,818 feet in No. 1 J. W. Furrh, Section 28-18-16, and is drilling chalk rock at 1,225 feet in No. 1 John Furrh, Section 32-18-16. State Line Oil & Gas Co. has made location 670 feet north and 650 feet west of SE cor., Section 22-18-16, and has derrick up for No. 1 Amanda Sharp.

Vivian district—T. D. Gray and others have drilled in on No. 1 J. J. Hart, Section 29-21-16, total depth 2,292 feet, and are waiting on standard rig to pump. Standard Oil Co. has rig up for No. 54 Helpman, Section 16-21-16. Standish Oil Co. has drilled 6-inch plug at 1,039 feet in No. 1 Jolly, Section 32-22-15, in the Hosston district.

Miscellaneous—Ohio Oil Co. has cemented 10-inch surface string at 205 feet in No. 1 Thompson, a wildcat near the Texas state line west of Rodessa in the northwest corner of the parish and is drilling at 1,320 feet. Simplex Oil Co., whose No. 3 Thomas, Section 15-20-15, has been shut down waiting on standard rig since July 20, is drilling No. 4, same lease and section, after setting 100 feet of 10-inch. No. 4 was drilled to 2,387 feet, plugged back to 2,212 feet and will pump at 2,355 feet. Tubbs and others, drilling No. 1 Ben Hines, a wildcat in Section 9-14-16, have shut down at 1,830 feet and are waiting on a new rig. Woodley Petroleum Co. began drilling No. 4-B McKnight, Section 2-15-12, October 27, set 10-inch at 107 feet and is drilling at 950 feet. No. 1-A McVey, Section 23-19-14, is down 730 feet.

DeSoto Parish

Pleasant Hill—Magnolia Petroleum Co. deepening No. 1 Logan, Section 17-10-12, completed July 7 as a 35-bbl. producer at 3,173 feet, is drilling shale at 3,245 feet. Wingfield and others' No. 1-A Haywood, Section 18-10-12, is in shale and boulders at 2,350 feet.

Miscellaneous—American Controlled Oil Co.'s No. 1 Lanier, Section 7-11-11, bailed 6-inch casing cemented at 2,610 feet. Benson Oil Co., formerly William Sebastian's No. 1 Wolf in Section 3-10-13, began drilling October 30 and has set surface string, 12½-inch, at 102 feet. Dixie Oil Co.'s deep test, No. 1 Jenkins, Section 9-12-11, is drilling lime at 5,690 feet, having been in this formation since reaching 5,617-34 feet.

La Salle Parish

Urania—Pima Oil Co. is drilling No. 10 Urania, Section 7-10-2e, at 1,477 feet. Zoder and others' No. 6 Urania, is down 1,400 feet. Location is 400 north and 300 east, SW cor. SE SE, Section 7-10-2e, drilling having begun October 26.

Monroe District

Morehouse Parish—Consolidated Carbon Co. is trying to kill a gas blow out at 370 feet in No. 1 Perry, Section 14-20-4e, the gas at this level being due to leakage from older wells in which casing was not properly cemented. The Texas Company's deep test in Section 22-20-6e, No. 1 Siveley, is drilling red shale at 2,655 feet.

Ouachita Parish—Hatcher & Evans have cemented 6-inch in Noll Hatcher, Section 16-19-4e, at 2,086 feet. Imperial Oil & Gas Co. is drilling No. 2 Stubbs, Section 13-19-3e, at 1,300 feet after setting 8-inch casing at 923 feet. Industrial Gas Co.'s No. 1 McGee, Section 3-18-4e, has cemented 8-inch casing at 837 feet. Ladell Properties' No. 45 fee, Section 20-20-5e, is drilling at 1,850 feet after cementing 8-inch at 810 feet. Ouachita Natural Gas Co. cemented 8-inch at 844 feet in No. 2-A D'Arbonne, Section 34-19-3e, and is drilling at 1,746 feet. Southern Carbon Co. is drilling below 100 feet in No. 8 Fairbanks, Section 38-19-4e, having begun making hole October 30.

Union Parish—Carter & Goodwin are down 1,600 feet with No. 1 Security, Section 7-23-1e. Interstate Natural Gas Co. is drilling No. 1 Steele, Section 36-20-3e, at 1,661 feet while No. 1 Parks in Section 23-20-3e, remains a derrick and No. 1 Stephenson, Section 6-21-4e, is still a location.

Red River Parish

The Texas Company is arranging to test No. 36-B Brinkerhoff, Section 30-13-10, in the old Gusher Bend area, at 2,538 feet with 6-inch casing cemented at 2,502 feet.

Richland Parish

W. C. Feazel has cemented 8-inch at 870 feet in No. 1 Hemler, Section 20-16-6 and has rigged up to drill No. 2 Hemler in Section 6-15-6. Gulf Refining Co. made location for a new well, No. 1 Millsaps, 100 feet south and east, NW cor. NE, Section 8-17-6, and is on a rock in No. 2 Wayne Lumber & Timber Co., Section 23-16-5, at 1,899 feet. Moody & Seagraves also have made location for two new tests, having stakes set for No. 1 Hatch, 1,983 feet east and 1,330 feet south of the center of Section 34-16-5, with derrick pattern on location for No. 1 C. M. Noble, 2,258 feet west and 1,985 feet south, NE cor., Section 36-16-5. Their No. 1 William Jones, Section 15-18-7, a wildcat northeast of production, is in shale and boulders at 2,675 feet and No. 1 McClanahan, Section 36-16-5, is drilling sand rock at 1,384 feet; No. 2 McCoy, Section 30-16-6, is in lime at 1,520 feet.

Natural Gas & Fuel Corp. has set 20-inch casing for surface string at 200 feet in No. 2-B Sartor, Section 19-16-6, and No. 1-A Sartor, Section 9-16-6, has 15½-inch set at 186 feet. Roxana Petroleum Corp. began drilling No. 2 Tensas Delta Land Co., Section 1-14-5, on November 1 and has set 12½-inch casing at 171 feet. Southern Carbon Co. is the newest operator in the district with derrick pattern on location for No. 1 Sartor, 860 feet north and 1,320 feet west of C, Section 20-18-8. Standard Drilling Co.'s No. 1 Delta Hardwood Co., Section 22-16-7, is drilling at 2,240 feet and Stovall Drilling Co. has derrick up for No. 1 Dunning, Section 26-16-6. Woodley Petroleum Co. and Triangle Drilling Co. have shut down for fuel in No. 1 Hemler, Section 31-18-7, total depth, 2,455 feet.

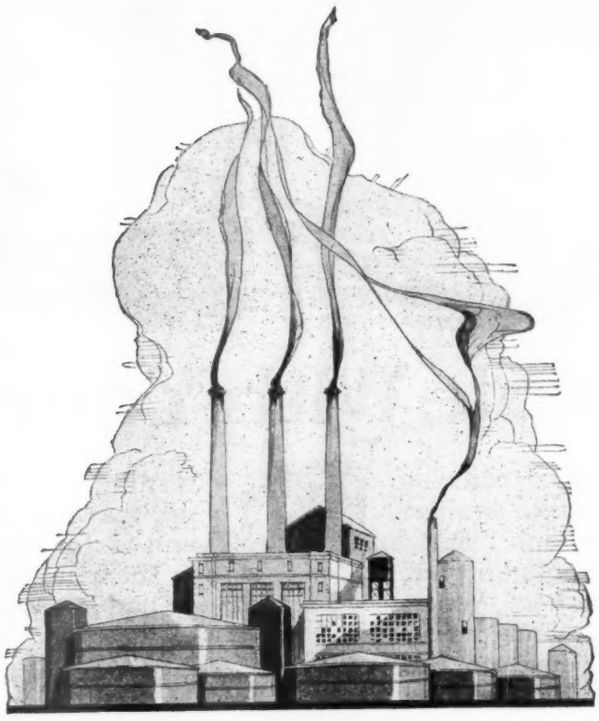
Sabine Parish

Pleasant Hill—Arkansas Fuel Oil Co. made approximately 200 feet of hole in lime rock since last report in its deep test in Section 32-10-12, No. 1-A Logan. Total depth on last report was 4,258 feet. No. 11 Logan, Section 33-10-12, is rigged up ready to spud. Frazier and others got a spray of salt water with an estimated 500,000 feet of gas in testing No. 1 Harris, Section 29-10-12, on the northwest edge of proven area and the well is shut down waiting orders at 3,290 feet. Six-inch casing was cemented at 3,140 feet a week ago after a blow out while drilling at 3,290 feet. Magnolia Petroleum Co. is drilling No. 2 Moore, Section 32-10-12, at 2,695 feet. Moffatt and others' No. 3 Moore, Section 5-9-12, is drilling at 2,300 feet.

Miscellaneous—A. H. Tarver's No. 1 Long-Bell, Section 5-8-13, is shut down waiting orders at 3,503 feet.

Webster Parish

Cotton Valley—Humble Oil & Refining Co. will make a deep test in Cotton Valley, its first in that district, and has chosen No. 1 M. E. Gray, Section 26-21-10, in the south edge of production as the location. This well was completed in the regular pay as a 15,000,000-foot gasser at 2,545 feet, February 7, 1925, and is rigging up to go deeper. The company's No. 5 J. J. Babb, a new location 660 feet north and west, SE cor., Section 14-21-15, is rigging up. Magnolia Petroleum Co.'s No. 1 G. W. Cole, Section 27-21-10, is drilling at 2,725 feet:



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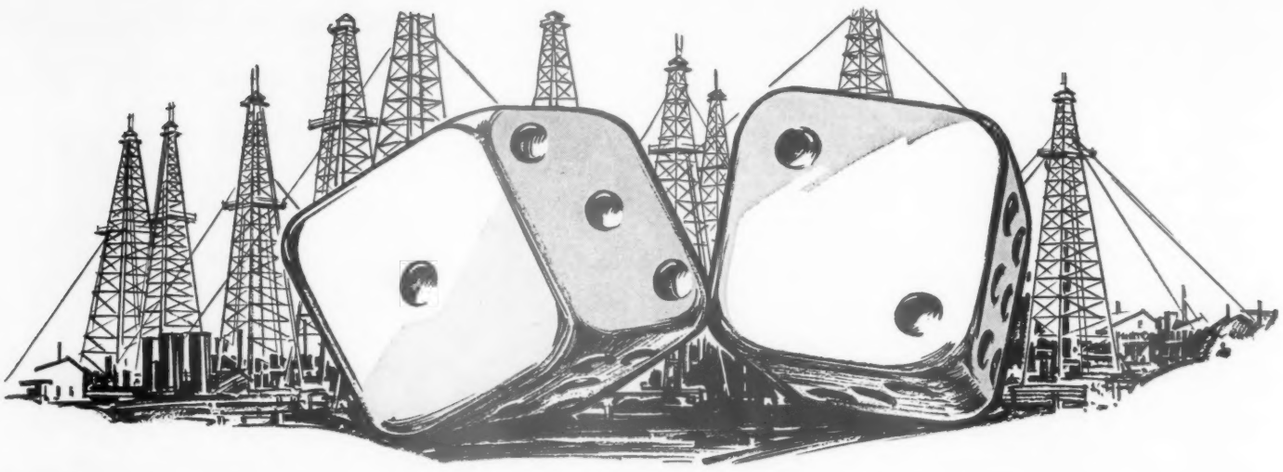

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No. 1 D. G. Cox, Section 22-21-10, is coring sandy shale at 2,525 feet, and No. 3 Cox, a Trinity test in 23-21-10, is in hard lime at 4,400 feet. Ohio Oil Co.'s Trinity test, No. 4 Holloway in Section 23-21-10, is arranging to set a string of 6⅝-inch casing at 4,250 feet.

Sarepta-Shongaloo—Magnolia Petroleum Co. has rig up to drill No. 1 Newsom, Section 32-23-9, and No. 1 Wise, Section 30-23-9, is drilling shale at 2,703 feet; No. 1 Haynesville Mercantile Co., Section 1-22-10, has set surface string and is drilling at 412 feet. No. 1 W. B. Roseberry is a new location, 660 feet north and west, SE cor. SW SE, Section 29-23-9.

ARKANSAS

Ouachita County

Smackover—Exchange Oil Co. has set a short string of 4½-inch casing in No. 4 Berg, Section 4-16-15, at 2,588 feet. Marine Oil Co. milled out at 2,250 feet in No. 14 Snyder, Section 34-15-15, drilled to 2,350 feet and set a short string of 4½-inch. Phillips Petroleum Co. is coring No. 19 Joyce, an old producer in the 2,600-foot sand, at 2,648 feet. The Texas Company is reaming to bottom, at 2,775 feet, on No. 1 Davidson, Section 26-15-16.

Miscellaneous — Magnolia Petroleum Co. cored hard lime at 2,972 feet in No. 1-B Stout Lumber Co., Section 28-14-16.

Union County

Smackover—Keen & Woolf bailed dry after a show of oil and salt water in sand from 2,744-52 feet in No. 4 Murphy, Section 9-16-15, and pulled liner, total depth 2,766 feet. Laurel Oil & Gas Co. is arranging to deepen No. 1 Houston, Section 12-16-16, completed June 25, 1925, as a 100-bbl. producer at 2,623 feet. Magna Petroleum Co. cemented a short string of 4½-inch at 2,698 feet in No. 6 Tatum, Section 7-16-15, an old pumper completed a year ago at 2,007 feet. Magnolia Petroleum Co., deepening No. 7 Wilson, Section 17-16-15, tested oil and salt water at 2,108 feet and cored broken sand at 2,114 feet.

Nevada County

Irma—J. J. O'Brien's No. 2 Robert Haynie, Section 6-14-20, is waiting on standard rig with sand from 1,201-04 feet; No. 1-B William Haynie in the same section, cemented 6-inch casing at 1,198 feet; No. 14-A Moss, Section 1-14-21, is waiting on standard rig with sand from 1,154-60 feet and 15-A Moss, same section, is bailing to test 6 feet of sand 1,164-70 feet.

ROCKY MOUNTAIN AREA

(Continued from Page 56)

equipped with stove, fuel and food supplies.

Two completions were reported for the week from Salt Creek. One of these, Wyoming Associated Oil Co.'s No. 19-L, SW Section 26-40-79, had an initial production of 1,788 bbls. from the Lakota sand at a total depth of 2,505 feet. After being tested, it was shut in. The other was the Midwest Oil Co.'s No. 16, SW Section 25-40-79, completed at 1,257 feet with an initial production of 136 bbls. from the First Wall Creek.

In the LaBarge district, the Texas Production Co.'s No. 1 Davis, Section 15-26-113, which is being deepened from 590 feet where it had 2,000,000 feet of gas, is drilling at 605 feet with 200 feet of water in the hole. The Utah Oil Refining Co.'s No. 1 Bird, Section 21-27-113, is shut down at 2,003 feet waiting for orders. It probably will remain idle for the winter and then be drilled deeper, or a new well started at a more favorable location. Same company's No. 1 Davis, Section 10-20-118, has been cemented at 1,021 feet after plugging back from 1,515 feet to make a test.

The Elkhorn Oil Co. has contracted for the drilling of a test in the SE, Section 17-27-113, about a mile north of the California Petroleum camp. Contract calls for a minimum depth of 2,000 feet. Joseph Minton and associates have rigged up and are ready to start in their No. 1, Lot 1, Section 4-26-113. Rail shipments from the LaBarge district by truck to Susie and thence by rail to Salt Lake City, aggregated 42 cars or approximately 12,000 bbls. in the first half of October.

The Utah Oil Refining Co.'s No. 1 Fort Collins, Section 26-43-91, on the Black Mountain structure on the line between Washakie and Hot Springs Counties, is being deepened from 3,763 feet, where it failed to get production and was scheduled for abandonment. A recheck of the geology led to the conclusion that the horizon in the Amsden sand where production might be expected had not been reached. It is drilling in white lime at 3,780 feet. Same company's No. 2 State, Section 36-43-91, has recovered lost tools and is drilling ahead at 1,850 feet in red shale. This company has five productive wells in the Ember-Tensleep series in this field and its No. 1 Fort Collins is a test to the Amsden which lies below these horizons.

The Deseret Oil Co.'s No. 1, SW cor. NW, Section 6-14-118, Uinta County, in the southwestern corner of the state, has a show of gas in sand at 2,830 feet. This test has a surface elevation of 7,003 feet above sea level.

Colorado

A discovery which may develop into one of importance was made in the Left Hand Oil Co.'s No. 1 Prechtl, NW SW, Section 34-3n-70, in Boulder County, Colorado, which encountered oil in the Muddy sand of the Dakota series, and which appears to be in commercial quantities, though no test has yet been possible. The well is about 30 miles south and a little west of the nearest producer in the Wellington-Fort Collins district in Larimer County, and 12 miles north of the old Boulder Field. The test encountered water some time ago at 1,840 feet, the fluid rising to within 200 feet of the top. Casing was run, but a successful shutoff was not effected. It was then drilled to the top of the Muddy at 1,940 feet, where a show of oil was encountered.

Four unsuccessful efforts were made to cement off the water. It was then decided to drill on down and see what would be found. The hole was deepened to 1,998 feet, about 53 feet into the Muddy horizon. It appeared to be saturated all the way down and to have heavy saturation at the bottom, but on account of the presence of the water, no reliable figures are available as to what it will make. Officials of the company estimate the showing at anywhere from 15 to 60 bbls., while others put it as high as 100 bbls. The plan is to run tubing and make a test before making any further efforts to shut off the water. There is gas with the oil and water. The Muddy is estimated to be 100 feet thick at that location, of which 33 feet is true sand and the remainder sandy shale. The sand is hard and tight.

It has been the theory of a number of geologists that structures close to the foothills of the mountain range offered the best possibilities for oil and the Wellington-Fort Collins Domes were pointed to as examples. However, numerous tests have been drilled along the range front between Colorado Springs and the Wyoming line, but so far only the Wellington-Fort Collins area has been productive. The new structure has been named the Left Hand Dome as it is close to a small stream of the same name. The company has planned to drill another well at once, probably one-fourth of a mile to the south. The Muddy is the producing horizon at Wellington and Fort Collins, where it is 2,000 to 2,500 feet deeper than in the Left Hand well.

Conjecture Regarding Sand

The principal development of the week in northwestern Colorado was in the Texas Production Co.'s No. 17 Parkinson (formerly No. 1, NW SW, Section 23-4n-92, on the Iles Dome, which topped a sand, probably the Sundance, at 3,485 feet and commenced making gas and oil. The quantity of gas and oil has not been estimated, though the well made several flows by head. Drilling was suspended until the 4½-inch casing can be run to the top of the sand. This well is the third to reach the Sundance on the Iles structure, if the horizon it now is in is authoritatively identified as such. It had water at 2,965 feet from the Dakota, the volume being sufficient to flow over the top. This was shut off with the 6¼-inch which was cemented at 3,170 feet. Oil commenced showing in the Morrison formation at 3,316 feet and at 3,345 feet, stood 2,000 feet in the hole.

At 3,458 feet, the hole was in broken lime, the quantity of oil remaining about the same. Most of the wells on the Iles Dome have shown several sands, or sandy shale horizons in the Morrison so there still is a possibility that this well is not yet in the Sundance. The well is on the east side of the structure, about 660 feet east of the Midwest Refining Co.'s No. 18 SD Parkinson which is on a production test from the Sundance, and a little less than half a mile east of the Sundance discovery well. It is one 100-foot structural contour lower than No. 18 SD, and two contours lower than the Texas Production Co.'s No. 5 Parkinson, three-fourths of a mile to the north, which is producing around 500 bbls. a day from the Morrison, and which was not drilled to the Sundance. The discovery will add acreage to the proven area of the pool, the edge of which has not yet been determined.

No new developments of importance were reported from the other Iles Dome wells. Midwest Refining Co.'s No. 18-SD Parkinson, NW SW, Section 23-4-92, is being given a production test from 20 feet of Sundance sand at 3,342-62 feet. Figures have not yet been reported but it was making 315 bbls. natural before the test started. The Texas Production Co.'s No. 5 Parkinson, NW NW, Section 23, is on production and making 500 bbls. from the Morrison. Same company's two new wells on this structure, location of which was announced last week, have not yet spudded. Midwest Refining Co.'s No. 34-SD Parkinson, SE SW, Section 22-4-92, is underreaming at 2,925 feet with total depth of 3,053 feet. Same company's No. 4-SD Shaw, NW NE, Section 27-4-92, is underreaming the 6¼-inch at 3,043 feet, with total depth of 3,195 feet, and its No. 8-SD Parkinson, NW NW, Section 23-4-92, is rigging up.

Production Estimate

On the Moffat Dome, the Texas Production Co.'s No. 10 Knowlton, Section 33-5n-91, is waiting for 4¾-inch spider slips at 4,415 feet, the bottom being in the top of the Sundance sand. A recent estimate on the Moffat Dome is of interest in connection with the discovery of new producing horizons in the Morrison and Sundance sands below the Dakota from which the production here-fore has come. This estimate places the total output from the pool up to January 1, 1928, if the present rate of production is maintained for the remainder of the year, at 2,700,000 bbls. from 10 wells producing from the Dakota, on a little less than 100 acres of Dakota sand territory, or 27,000 bbls. to the acre. The one test drilled below the Dakota indicates that the Morrison and Sundance will be productive over a larger area than the Dakota.

The companies operating on the Iles Dome are preparing for winter operations, the water and fuel lines being buried underground 5 feet, camp facilities enlarged, and supplies being taken in. Wildcatting on other structures made attractive by the new discoveries probably will not be active until spring. Some core drilling along the projected Axial Basin anticline is being done to work out the highs which are not visible at the surface due an overlay of Brown's Park beds. The Midwest Refining Co. has staked core drill locations on the Dry Creek fold four townships to the northwest of the Iles Dome, and it is probable that the Midwest will drill a test on the Bell Rock Dome in 6 North, 92 West. Yarg Producing & Refining Co. has acreage in the Dry Creek district.

New Test Announced

In Rio Blanco County, south of Moffat County, the location of a new test to be drilled by the Argo Oil Co. was announced. This well, a 3,000 foot test of the Green River formation of the Tertiary age, has been spotted in the NW SW, Section 9-2s-96. The structure is a large one and has 20,000 acres inside of the 200-foot closure, with a big drainage area. The Green River is the formation that contains the shale beds. On the Rangely Dome, the Midwest Refining

Lubricate your auxiliaries from a Central Point

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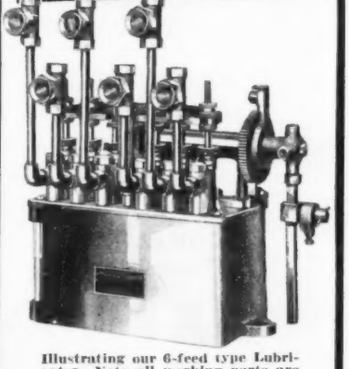

Illustrating our 6-feed type Lubricator. Note all working parts are above the reservoir, providing accessibility.

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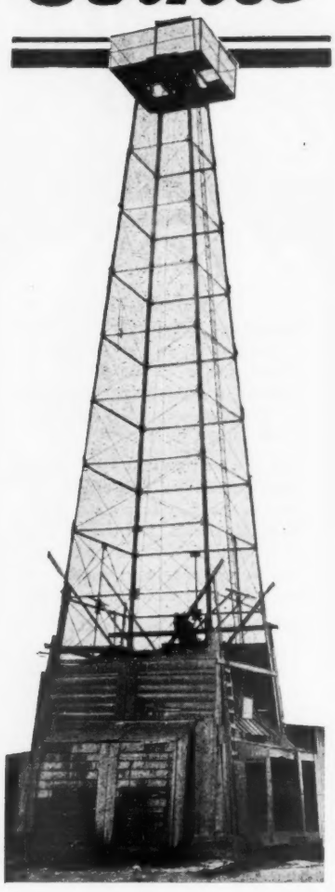
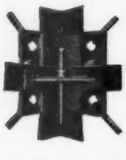
FORCE FEED LUBRICATORS
SPEED REDUCERS
CHEMICAL PUMPS

Boltless Joints



The patented *boltless joint* of the BRADEN Clamp-Joint Steel Derrick represents a *pronounced* advance in steel derrick construction. One wedge-shaped pin locks the joint securely. This joint greatly speeds up erection and dismantling, and promotes safety and strength.



Note also how turnbuckle rod ends *lock* in their slots, permitting higher tension and greater flexibility. Ask for fully descriptive literature.

STEEL BUILDINGS. Braden Sectional Steel Buildings and patented "Lock-Joint" Buildings are especially built to answer every requirement of oil producer, refiner, jobber or drilling staton owner.

BRADEN STEEL & WINCH COMPANY
Tulsa, Okla.

BRADEN CLAMP-JOINT DERRICKS

Co.'s No. 2 Rangely, Section 30-2n-102, is making new hole after being delayed for two months at 3,037 feet by a redrilling job. The hole is bottomed at 3,050 feet and lubricating. After passing through a water sand (probably in the Dakota) topped at 3,030 feet, it picked up a gas sand at 3,047-50 feet which built up a pressure of 800 pounds in one hour.

In the southwestern corner of the state, the Cotton-Coon Syndicate's No. 1 Hall, Section 9-35-13, Mancos Dome, Montezuma County, has skidded the rig 200 feet to the west, the old hole being blocked by tools at 900 feet. The Dakota is expected at 1,200 to 1,300 feet. The Detroit Oil Association's No. 1 Olbert, Section 9-35-12, Thompson Park structure, La Plata County, is drilling at 960 feet with a small show of gas at 820 feet. The Moody Oil Corp.'s test on Section 30-41-16, Glade structure, Dolores Couunty, is reported drilling at 3,000 feet with 10-inch at 2,700 feet.

In Jackson County, adjoining the Wyoming line, the Continental Oil Co.'s No. 1 Hoye, SW NE, Section 34-9n-78, is running 8¼-inch at 3,750 feet. This well had sufficient gas in an upper stratum to supply the camp, but not in sufficient quantities to fire the boilers. This well is on the South McCallum Dome, separated from the North McCallum structure, upon which the company's freak carbon-dioxide gas-oil well is located, by a pronounced fault with a downthrow on the side where the freak well is located. This well found the sand at 5,110 feet. On the south dome, the Carter Oil Co. drilled several years ago and had the Dakota at around 3,900 feet. The Hoye well is some distance away from the old Carter well and was located after the structure was regeologized by the Continental.

Increased Activity Likely

The Union Oil Co. of California has made a location for No. 7 Buckeye in the SE Section 31-10-68, on the Wellington Dome, in Larimer County. This, following the two locations announced last week and the decision to make deep tests out of two of the old wells, indicates increased activity on that and the Fort Collins structure. It is unofficially reported that the Union has worked out a new structure to the north of the Wellington Dome and has made a contract to start a test by December 10. The location is said to be in the SE cor., Section 30-11n-68, or 11 miles north of the Wellington Dome. Considerable leasing has been reported in that area recently.

The Northeastern Colorado Oil Co.'s No. 1 State, Section 36-8n-55, Willard Dome, Logan Couunty, is drilling at 5,185 feet in a formation showing bentonite which has a tendency to cave. The hole has just gone through some black lime and it is believed that a definite marker has been found placing the depth of the objective Dakota sand at 5,300 feet.

An unconfirmed dispatch from the Western Slope, says that the Gypsy Oil Co.'s No. 1 Garmesa, Section 5-8s-102, Garfield County, went wild, demolished the derrick and blew a string of casing out of the hole. Casing was being pulled to plug and abandon. The well was drilled to 3,871 feet and had gas in several horizons, being mostly carbon dioxide.

The Continental Oil Co.'s No. 2 Melvina Steinmer, NE cor. NW NW, Section 2-19-70, west extension of the Florence Pool in Fremont County, is spudding. Same company has taken over from Henry Fox a lease on the 90-acre Benedictine Abbey tract and will deepen No. 1 Abbey, which has been shut down for some time at 1,650 feet.

Essok Oil Co.'s No. 1 Martin, NW SE, Section 5-1s-70, Parallel Dome, Boulder County, is reaching an interesting depth. It is bottomed at 5,135 feet and lowering 4¾-inch casing. The objective Dakota sand is expected at almost any time. This well is running considerably higher than the Repollo Oil Co.'s No. 1 Deines, Section 33-1n-70, which was abandoned at 4,730 feet without reaching the Dakota on account of a bad hole.

Utah

Another failure was reported from Utah this week, the Union Oil Co. of California's No. 1 State, Section 16-30-25, on the Lisbon Dome, in San Juan County, being slated for abandonment at 5,010 feet. The casing is being pulled. The test went through 3,500 feet of salt and ran true to form with the Colorado River tests south of Moab. It had numerous pockets of oil and gas in thin strata of shale, sand and lime, but nothing that would justify saving. It was in salt when drilling stopped. It is probable that the company will accept the salt dome theory as applying to the area and will drill a flank well, though no announcement to that effect has been made. The tests south of Moab, the Union test, and the three tests of the General Petroleum Co. on the Colorado side demonstrate clearly that the immense salt beds extend over a large area.

The theory that these are salt domes is not universally accepted. The Midwest ceased operations in the area on the theory that one of the wells its drilled was a flank well and disproved the contention . Wildcatting in the area is not yet a closed chapter and it remains to be seen who is right. If those who hold to the salt dome theory are right, the district may yet furnish its share of the country's oil for there certainly have been plenty of showings of oil and gas to make the average person wonder if there does not still remain much to be learned about the formations.

The Utah Southern Oil Co.'s No. 1 Frank Shafer, Section 6-27-21, on the Cane Creek Dome, was drilled to 5.000 feet by the Midwest interests, is testing the horizon at 2.028 feet which flowed by heads for several months, but from which the water was not shut off. The same company plans a flank test to be started soon. The Utah Southern's No. 1 Canyon, Section 18-41-19, on the east anticline in San Juan County, is again making hole and is down 1,310 feet, a change recently being made from cable tools to diamond drill.

The Midwest Exploration Co.'s No. 1 Early, SE SW, Section 13-4s-6w, on the Duchesne structure, in the county of the same name, is going to be watched with interest. This well was reported last week showing 2.400 feet of oil in the hole when casing was pulled to resume drilling. This is one of the tests of the oil shale bearing formations of the Tertiary period, of which several are under way in the Rocky Mountain area.

Discovered in 1920

The Duchesne structure lies south of the town of Duchesne, 70 miles west of the Colorado line. The anticline was discovered and worked out by geologists for the Matador Petroleum Co., a subsidiary of the Royal Dutch-Shell interests, Dr. Justin H. Cline, discovering the structure in 1920. All of the available land was leased by the Matador company, and contracts were made with permit holders for a joint test, but a change in the policy of drilling wildcats in America by the Dutch Shell's London office resulted in the transfer of the holdings to the Ute Petroleum Co.

Max W. Ball, who had been the Dutch Shell's manager for this district, resigned to form the new company. The Ute company, in turn, made a contract with the Utah Southern Oil Co. and the two companies drilled the well to a depth of 2,867 feet. It had a showing of oil at 35 feet and at least a dozen shows of oil and four strong shows of gas. In the last 1,000 feet the slush pit was discovered with oil most of the time. At 2,867 feet, the test was shut down for lack of fluid. It was bottomed in a horizon making some gas and sulphur water. Recently the Midwest contracted to deepen this well to 3,500 feet with the option of drilling a second well. When the casing was pulled, it was found that 2,400 feet of oil had risen in the hole.

The oil is heavy, apparently having stood in the hole and mixed with the sulphur water for 4 years, and is not a true indication of what may be expected as to quality. Geologists familiar with the area expect that from three to seven sands will be encountered in the next 700 feet. Companies with holdings on the structure in addition to those named include the Ohio Oil Co., the Kinney-Coastal Oil Co. and the Continental Oil Co.

Midwest Exploration Co.'s No. 1 Hughes, Section 30-34-19, on the Elk Ridge Dome in San Juan County, appears to have taken a new lease on life and to have passed through the thick sand which indicated the company might quit. It is now in dark blue and very sandy shale at 4,345 feet. Embar Oil Co.'s No. 1 Big Six, Section 34-25-21, Moab Dome, is bottomed at 4,600 feet in gray sand showing a slight oil saturation and enough gas to burn at the casinghead. The Texas Production Co.'s No. 1 Shipley, Section 5-27-14, Sweetwater structure, is drilling in shale at 1,950 feet.

Midwest Refining Co.'s No. 3 Ashley Creek, Section 23-5-22, Uinta County, is drilling in gray shale at 825 feet. Showings of oil and gas were found in the Frontier at around 700 feet. Log shows that the well is running 18 feet lower than No. 1 which had 30.000,000 feet of gas in the Morrison at 1,685 feet.

Montana

The oil business is looking up after a rather dead summer in the Montana fields. The new line that will carry gas from the Sunburst Field to Great Falls is well along with the ditching and another machine was unloaded last week at Shelby. The Hope Engineering Co. has made a close estimate of the amount of gas available for the line and this figure is placed at 173,000,000,000 feet while the present available amount is 100,000,000 feet which has been developed by the Northern Natural Gas Development Co. The company has stopped drilling operations now and will not drill any more wells until the gas line is completed.

Great Falls is expected to use about 4,000,000,000 feet per annum and the Turner Valley gas area is regarded as a reserve in case the Sunburst gas plays out. The Great Falls Gas Co. is preparing to make changes in 30,000 regulators, burners and other appliances which are now using manufactured gas.

Sixty-six carloads of pipe for the line have been received and distributed along the right of way and the reports from the mills in the east show that a total of 225 cars have been shipped out, making more than half the amount of pipe needed for the line, rolling towards Montana.

S. C. Fertig returned from the Oregon Basin Field in Wyoming the past week and reported great activity there. The Ohio Oil Co.'s recent purchase of 800 acres for $2,000,000 has created excitement and much speculation among landholders and this excitement is spreading to the Montana areas. Mr. Fertig is one of the pioneers of the Sunburst Field and is heavily interested in the Oregon Basin of Wyoming.

Using Lye Solution

A well of the Carter Oil Co. in the Sunburst Field has shed considerable light the past week on the matter of shooting wells in the Ellis sand in this territory. The results may upset all the theories expounded as to pockets of oil in that sand.

The Ellis sand is commonly referred to as spotted, in its oil bearing qualities in the Sunburst Field, and this condition is on account of the dry holes frequently found in among good producers and also because of the fact that often a fair showing of oil will disappear after a shot, the latter condition having brought forth a theory in some geologists' minds that the

(Continued on Page 137)

LEGAL

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December 6, 1927, by United States Government.

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1—23 Star (frame cracked) with enough tools to drill.
1—28 Special mounted boiler, good as new.
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2—10 ft. wide 40 ft long 8 ft. deep.
3—30 ft. wide, 30 ft. long 8 ft. deep.
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All equipped with 10 ft. compartments.
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Eastern Refined Oil Market Unchanged

Despite Fact Consumption Maintains High Level, Gasoline Is Weak With Price War Started by Dumping

By N. O. Fanning
New York Bureau, The Oil and Gas Journal, Room 629, No. 101 Park Avenue, New York, N. Y.

NEW YORK, Nov. 7.—The refined oil situation on the Atlantic Coast was not much changed during the past week. Despite the evident optimism among oil men regarding the outlook, no concrete evidence of improvement at this end of the line could be noted, and expressed optimism over the declining of Seminole was regarded as more of hope than of present betterment.

An interesting angle of the crude situation from this end of the business is the fact that coincident with the decline in Seminole, shipments of West Texas crude direct from Corpus Christi to the Atlantic Seaboard have started on a fairly heavy scale. Standard Oil Co. of New Jersey, it is understood, has contracted for a fairly large amount of West Texas crude with Humble Oil & Refining. However, the running of this crude is still in the experimental stage, and it is too early to say just what place this crude will have in the market here.

General conditions affecting petroleum consumption are generally unchanged. Seasonal factors are probably the outstanding ones with regard to most products, these being at work in a more or less normal manner. Refiners report that if anything, the consumption of all oils is showing less of a seasonal winter decline so far than has usually been true. Although there has been considerable rain of late, week-ends have been clear and favorable for pleasure driving. The outstanding fact probably is that any weakness present in the refined oil markets cannot be attributed to a decline in normal consumption.

The one possible exception to the seasonal trend is lubricant oils. As a result of a failure of industrial activity to speed up seasonally in certain lines, consumption of lubs and greases has been below par.

Foreign developments from a marketing viewpoint are understood not to have changed much. Atlantic Seaboard refiners, however, are experiencing a somewhat better business in the export trade. It may be, as some believe, that foreign buyers have sensed bottom and are coming into the American market on a good scale.

Gasoline Situation Weak

The gasoline situation on the Atlantic Coast is weak. The best proof of this is further evidence of price cutting at service stations. Some of the well-known branded gasolines were selling in some parts of this territory as low as 13 cents a gallon, a very big garage in Albany quoting this price, which has been met in many parts of the city. The general price in Albany just now is 15 cents a gallon, retail. The New York City price remains at 20 cents, retail. The price here, however, is higher than in most of the northern states of the Atlantic Seaboard, where retail quotations on branded material range from 17 to 19 cents a gallon.

The price war now on at Albany, N. Y., is directly the result of the throwing of distress gasoline on the market and so long as this condition exists, no definite improvement in the gasoline situation is looked for, irrespective of the crude oil market. The gasoline situation is dominated solely by competitive conditions in the gasoline market. This explains the variation in prices throughout the Atlantic Coast, prices being controlled largely by local competition, and not, as many presume, by orders from the executive offices of the oil companies, sometimes hundreds of miles away.

Close students of the gasoline market do see hope of improvement in the probability of a sharp decline in Seminole production, however. They point out that West Texas is not likely to directly offset Seminole, for the reason that West Texas crude is not so readily available to Mid-Continent refiners as Seminole crude. It is likely, therefore, that a continued drop in Seminole will be reflected in smaller total refinery runs and a drop in gasoline production within a short time. Thus, much price cutting may be partly eliminated.

The railroad freight rate situation, so far as gasoline is concerned, is not considered of general importance in the eastern market. The differential between the cost of shipping gasoline from the Mid-Continent to the Atlantic Seaboard territory by rail and cost of shipping it in bulk tankers is so great that any competition due to lower railroad rates can be easily met. If Mid-Continent refiners should obtain lower rates to the Atlantic, it would hurt western Pennsylvania and Central West refiners, but not those obtaining their material at seaboard terminals by tanker.

Atlantic Seaboard refiners are quoting 8 to 8¼ cents a gallon for U. S. Motor gasoline in tank car lots. It is understood that the few refiners who were offering it for 7¾ cents have withdrawn this price and are quoting 8 cents for very large lots and up to 8¼ cents for single tank cars. A large cargo of Trinidad gasoline came in to New York during the past week, but it is understood this is going direct to service station sales, and will not be offered for bulk purchase.

Kerosene

The kerosene market continues firm. All refiners are quoting 7½ cents a gallon in tank cars at refineries for water white. Prime white is moving on a larger scale, this material emanating largely from the interior. One factor says that he doubts whether the strength in kerosene can be maintained in view of the general weakness in the refined oil situation. However, opinion regarding this is divided, some seeing in current heavy export sales a stabilizing factor in the domestic situation.

Gas Oil

The gas oil market is active. There is an increasing demand for 26-28 zero cold test oil and sales of this have been reported at 5⅝ cents, which is an eighth over the current prevailing price. The local market for 26-28 was cleaned up several weeks ago by some heavy export shipments.

There has been a seasonal improvement in the demand for "28 plus" and 32 gravity oil for gas-making purposes, with most sales reported to be at 5½ cents a gallon. Several good-sized contracts were closed during the week.

Diesel and Bunker Oil

The demand for Diesel oil is holding up and there is no indication at present of any downward tendency in prices. The product is selling locally for $2.10 for the marine trade (lighterage extra).

Bunker fuel oil continues weak as a result of increased supplies and heavy competition. It is not generally realized that a fuel oil war has existed practically throughout the world for several months, and that the American market was the last to fall. The American market is said to be still out of line with prices in other leading countries.

Although no direct comparisons are available, it is said on good authority that Rumania and Russia are selling bunker oil at the equivalent of about $1.35 f.o.b. New York, as against a current market at New York of $1.45. Venezuelan oil is said to be an important factor in the foreign fuel oil market, too.

Lubricating Oils

There has been little change in the lubricating oil situation. Steam cylinder oils continue active. Red and pale paraffin oils are holding steady on moderate sales. Light and dark bright stocks are in supply but there has been no further shading of prices.

Paraffin Wax

Wax prices are unchanged. The market has quieted down materially. Crude scale wax is holding up much better than refined due to continued good export sales. Refiners are satisfied to hold present prices, and find that the demand from jobbers is all that could be desired.

Petrolatum

Dark green is the most active feature of the petrolatum market, but despite a good demand the price has dropped back to the 1⅞-cent level. Other grades are quiet and prices are unchanged.

The Export Market

The New York oil export market is active, but prices are unchanged. European buyers are placing good sized orders here, and it is the opinion in some quarters that they believe the market has reached bottom and now is the time to stock up. Gasoline and kerosene are the principal products in demand, but some good inquiries for lubricating oil have also come in.

It is the belief that independent foreign buyers have been holding off from buying American refined oils for some time because of the state of the market, and therefore are not well stocked with material at the present time.

One of the outstanding features of the export market during the past week was one of the largest shipments of cased oil ever to leave this port. It consisted of almost 600,000 cases, 284,250 cases of gasoline and 311,250 cases of kerosene, consigned to Argentina and Uruguay. This shipment is regarded as further evidence of the increase in oil consumption in the South American countries, in which the season of biggest demand is just beginning.

The September report of automobile exports from the United States was commented on as satisfactory by oil exporters. It showed in their opinion that many foreign car users are awaiting the new Ford car, but in other respects indicated a growing demand abroad for motor vehicles. Shipments of passenger cars and trucks for the month numbered 26,273 units. The loss in exports of passenger cars compared with the same month of 1926 was accounted for entirely by the decreased shipments of low-priced cars in the class up to $500. Shipments in all other classes showed an appreciable gain, especially in the $1,200 to $2,000 class. Truck exports increased slightly over September of last year through the gain of shipments in the 1 to 1½-ton classification.

The monthly average of automotive exports this year has maintained a substantial increase over that of 1926 so far.

Petroleum Exports

The following table shows principal exports of petroleum and petroleum products from New York during the last three weeks (all figures in gallons unless otherwise noted):

	Nov. 2	Oct. 26	Oct. 19
Gasoline:			
Bulk	2,785,095	5,080,742	104,664
Cases	3,352,500	1,634,000	735,950
Kerosene:			
Bulk	3,100,000	3,429,460	.....
Cases	3,282,500	2,680,570	2,242,590
Gas oil:			
Bulk	.....	7,630,918	.....
Lubricating oil:			
Bulk	.....	1,837,351	.....
Barrels	697,150	854,200	1,342,350
Cases	55,550	234,670	180,970
Lubricating grease:			
Bbls. (lbs.)	561,600	321,750	447,300
Paraffin wax:			
Bags (1 ea.)	609,620	441,540	1,580,260
Bbls. (lbs.)	1,812,125	826,975	1,627,350
Petroleum asphalt:			
Bbls. (tons)	227	.....	596

The foregoing figures include all shipments of 500 bbls., 1,000 cases, or more.

Tanker Market and Movement

The placing of several large tankers in the new trade between Corpus Christi and the Atlantic seaboard was the feature of the tanker market during the past week. This is the first direct effect of west Texas on the oil tanker situation. The boats now in that trade were taken from various routes, including those from Houston, Baton Rouge and San Pedro to the Atlantic seaboard. Indications are that considerable west Texas crude will go direct to the Atlantic Coast this winter.

The tanker market as a whole was less active, with charter rates unchanged. New fixtures included the following:

Tanker Lariston, gasoline or kerosene, United States Gulf to Montreal, prompt loading, 48 cents.

Tanker Pueblo, light crude, Gulf to two United Kingdom-Continent ports, December loading, 17 shillings 6 pence.

Tanker William Green, heavy crude, Tampico to Philadelphia, November loading, 21 cents.

Tanker Agwisun, heavy crude, Tampico to north Atlantic, 18 cents.

Receipts of crude and refined oil at Atlantic Coast ports for the week ended November 2 are estimated at 3,935,000 bbls., a daily average of 562,000 bbls. This compares with 4,481,000 bbls., or 640,000 bbls. a day, the preceding week.

Receipts from the Gulf Coast totaled 2,547,000 bbls., a daily average of 364,000 bbls., against a total of 2,901,000 bbls. and daily average of 414,000 bbls., the week ended October 26. Over 200,000 bbls. of Pecos County, West Texas, crude, were among the Gulf shipments for the week.

The Pacific Coast contributed a smaller amount of oil during the week ended November 2 than for several weeks previous. The total was 395,000 bbls., or a daily average of 56,000. For the week ended October 26 the Pacific Coast contribution was 834,000 bbls., or a daily average of 119,000 bbls.

Imports continue heavy. During the week ended November 2 they amounted to 993,000 bbls., or a daily average of 142,000 bbls. The week before the total was 746,000 bbls., or 107,000 daily.

Several new vessels have been placed in the trade between Colombia and Venezuela and the Atlantic seaboard.

Petroleum Receipts

The following table shows estimated daily average receipts of crude and refined oil by water at Atlantic Coast ports for the last 12 months (figures in barrels):

	Week ended Nov. 2	Oct. 26	Oct. 19
Gulf Coast	364,000	414,000	222,000
Pacific Coast	56,000	119,000	138,000
Mexico	38,000	54,000	53,000
South America	104,000	53,000	112,000
Total	562,000	640,000	525,000

Daily Averages by Months

1927—	Gulf	Pacific	Mexico	S. A.	Total
Sept.	336,000	97,000	69,000	99,000	601,000
Aug.	397,000	90,000	80,000	78,000	645,000
July	406,000	83,000	78,000	49,000	616,000
June	378,000	118,000	68,000	47,000	611,000
May	332,000	58,000	91,000	53,000	534,000
Apr.	388,000	93,000	69,000	61,000	611,000
Mar.	345,000	103,000	36,000	81,000	565,000
Feb.	379,000	89,000	40,000	48,000	556,000
Jan.	362,000	73,000	49,000	61,000	545,000
1926—					
Dec.	363,000	57,000	49,000	61,000	530,000
Nov.	325,000	62,000	56,000	40,000	493,000
Oct.	270,000	71,000	61,000	43,000	445,000

The foregoing figures are based on the carrying capacity of incoming oil-laden tankers.

Furnace Oils Stimulated in Chicago

But Cooler Weather Caused Quiet Gasoline Market With Better Though Not Large Demand for Higher Grades

By J. B. Waldo

CHICAGO, Nov. 7.—The cooler weather over the week-end stimulated the consumption of furnace oils but not of gasoline. The spot gasoline market on Monday was quiet with little demand for U. S. Motor grade but a better though not a large business in the higher tests. Several of the larger companies are holding for 6¼ cents for the U. S. Motor, but the majority are selling at 6 to 6¼ cents today to meet competition. The prices of the higher gravities were unchanged and steady. There were many inquiries for distillate and gas oil suitable for furnace oils and some buying of both, but the demand for the gas oil was the more active. Some of the local distributors made inquiries regarding gas oil and some business was done, but the dealers are not inclined to buy largely at present, although they state their own business is rushing. They do not expect it to hold at the present rate as the weather is not really cold enough to cause a large consumption. Prices are firm here, with some refiners holding for higher prices. The north Louisiana refiners are quoting 3 cents and better for gas oil and state in some instances that they are not anxious to sell gas oil at present. The colder weather had some influence in the fuel oil market, but the fact is more plainly developed by Monday's inquiries that a considerable number of the larger buyers have filled their tanks or at least bought materially at the low prices recently quoted by several refiners who were anxious to reduce their stocks and quoted attractive prices. One order for 100 cars of 16-20 fuel oil was placed last week by a local buyer at 75 cents, and this is higher than other refiners have secured for an equal quality or even a better grade of oil.

Little Activity in Gasoline

There was no large activities noticeable in the gasoline market all of last week and prices were in much the same position as the demand, just running along. There was no active spot demand to add to the strength and just enough doing to hold prices where they were. Some days it seemed to be a little more firm and the next day it would seem a little less so. With the larger refineries the deliveries on contracts are very good and the spot business is light. Several of the large refiners held their price for U. S. Motor gasoline steadily at 6¼ cents. They did not claim to be doing any large volume of spot business, just a few cars daily to regular trade, but their deliveries on contracts kept the plants busy and with reduced runs they had no great desire to sell unless they could get their price.

Others who wanted more spot orders stated that they had found it impossible to sell any quantity at the 6¼-cent price and had dropped to 6⅛ and were in several cases meeting competition as low as 6 cents but this was the absolute rock bottom so far as they were concerned. None but refiners selling direct were in position to make a lower price than the 6-cent quotation for the very bottom at any time for resale was 5¾ cents and this did not last long and the best that resale buyers could do at the close of the week was 5⅞ cents. On the higher gravities the market has settled at 6½ cents for the 60-62 400 endpoint and at 7 cents for the 64-66 375 endpoint. The demand for these was proportionately better than for U. S. Motor grade and prices were quite steady.

There was a report that some seemed to think important regarding purchases made by the Galena Signal Oil Co. of 64-66 both 390 and 365 endpoint. Their total purchases were given as 1,500,000 gallons and the price paid 6½ and 6⅝ cents, respectively. Several of the marketers in comment on this report stated that the purchase was not very important and that they themselves did not hesitate to buy 100 to 150 cars of gasoline over the month if the price was right and they sold as a rule considerably more than this number of cars.

Demand for Contracts Good

Refiners state that there is as good a demand for contracts this year as ever. There is some changing in the form of contracts and quite a number of the larger buyers are adverse to making contracts based on published market prices and some seem more ready to base their purchases on some sort of combination of the tank wagon and the spot market. Of course, there are some who want a contract that gives them several ways of figuring the price and the privilege of taking the lowest result.

One large dealer was asked what he really insisted on in the way of a price and his reply was: "I want as low a price as the dealer across the street. If he has a lower cost than mine, he has the advantage over me and even if he does not cut the price he can do things for his customers that I cannot afford to do."

That seems to be the nub of the contract price situation. If it were possible the majority of dealers, many here believe, would vote to return to a one-price system with no discounts. The fact that the industry is in such a chaotic condition regarding prices over much of the territory is largely due to the intrusion into the business of inexperienced men who believe that all that one has to do to be rich is to get into the oil business.

Not a week passes but someone asks advice as to going into the oil business. They do not want advice, judging by the usual result, but to have their judgment confirmed, for in most of these cases the seeker of advice goes into the business in spite of all that is told him against doing this very thing.

There are all sorts of schemes worked out that sound fine on paper with a limited knowledge of the conditions, especially of the competition that will have to be met and overcome to make the venture a success. Recently a man with considerable sales experience but no knowledge of the oil business developed a plan to build bulk stations at various points and from these bulk stations to supply a string of service stations which were to be put in by some local resident and he based his belief that there was a large profit to be made on the plan through quantity purchases. He could not be made to believe that his largest possible purchases as he had developed his plan would not equal the quantity bought by many of the larger independent dealers.

In State of Flux

The whole situation in the distributing end of the business is in a state of flux. There are several movements for co-operative buying such as that mentioned in Michigan last week. There several large independent dealers have combined to form a purchasing organization which will buy the total requirements of all the members. There is the tendency noted at the meeting of the I. O. M. A. to gather together in organized companies to compete with the integrated companies on their own terms. The large companies have their special agent contracts and these have been sufficiently successful for even the Standard Oil Co. to make "an authorized agent agreement." This agreement is one in which dealers are given a contract to act as the agent for the company. The dealer agrees to devote his time to the business and to follow certain rules and regulations. The company supplies him on consignment with stocks of gasoline and other products. As the sales are made the company replenishes the supply and collects for the quantity sold allowing the dealer a commission of 2½ cents a gallon. In addition to this commission the dealer is paid in cash an additional sum depending on the quantity sold. If sales during any one month reach 6,000 gallons the dealer is paid one-half cent additional per gallon; if 10,000 gallons, 1 cent additional to the regular 2½ cents and if the total sales in any month exceed 15,000 gallons he is paid 2 cents per gallon additional.

Provision is made for a variation in the monthly sales, that is, if the total sales for the year exceed 72,000 gallons, he is paid the difference between the amount already received over and above the 2½ cents and the total commission at the rate of one-half cent a gallon on the 72,000 gallons. The same is true if his total annual sales exceed 120,000 gallons for the year when he is paid a total of 1 cent a gallon on his sales over the 2½ cents less any excess over that sum received at the monthly settlement. The sale of 172,000 gallons a year brings a commission of 2½ cents paid at the time of replenishment plus 2 cents a gallon on the entire quantity sold during the year less, of course, any monthly payments for excess over the 2½ cents.

Not Offered Generally

This makes it possible for an authorized agent to realize a total of 4½ cents on his yearly sales without any investment in the supplies that he sells. Credit may be granted to approved buyers and the dealer may engage in the sale of automobile accessories. It is stated that this contract is not being offered generally but is made with a selected list over the territory.

The move made by the Roxana Petroleum Corp. last week is expected to restrict price cutting. At all points where it has distribution and the prices are reduced below normal, the company will make the price the same at the station and at the wagon and do away with all discounts except the regular Q. D. A. The 1-cent in 100-gallon dumps are not allowed. If the dealer wants to cut the price he does so at his own expense and must operate on his quantity discounts. It will be seen that the situation is one of change and a striving both for settled conditions, but not sacrificing gallonage.

The kerosene market is just about the same. In the absence of further orders for export some of the Group refiners find themselves with material in their tanks which enables them to make prompt shipments and in some cases the prices for the 41-43 to the trade has been reduced to 4½ cents. Others are holding for the 4⅝-cent and even the 4¾-cent price. The demand is good for the season but the movement is not markedly large.

Distillates here have been held a little more firmly with the coming of several days of colder weather last week and the promise of a continued spell of at least frosty weather. Some of the distributors reported a considerable increase in the demand from consumers, others only a moderate business but they are all doing better than during the preceding week. The stocks are large and the demand is not yet sufficient to force them to do much replenishing although the tank car business has been some larger. Prices are firm at 3¼ cents average for a good straw, 38-40 distillate.

Zero Oils Held Firmly

The zero gas oils are also firmly held although refiners state that owing to the light consumption their contract dealers have not taken their full quantities and the refiner is holding more of the gas oil than he would like to. A little more of the colder weather and some of this stock will begin to move and it may move pretty rapidly for a while if the distributors begin to receive much replenishment business.

As a rule, the users of gas oil have larger tanks than the consumers who use distillate as many of them are larger buildings, apartment houses and the like. The larger tank enables the consumer to stay out of the market longer, but when he does refill it takes two or three times as much oil.

The entire gas oil market is somewhat stronger. Some Texas oil said to be of a good quality was bought last week at 2¼ cents, equal to about 2⅜ cents, Group 3, but refiners did not care to continue to sell at that price and were asking 2½ cents for resale for the straight run oil for industrial and utility buyers. The low cold test oils, light or dark, command a premium of an eighth of a cent for the low cold tests and an additional eighth to a quarter cent for light color.

The large gas companies are well supplied, and they only buy to replenish if the price is attractive. The smaller companies with limited storage are as well stocked as they can be and the demand from these buyers is not large. The industrial buying is some larger and promises to increase slowly with the larger consumption of oil for heating.

Generally, prices for gas oil are firmly held, as would naturally be the case at what is practically the opening of the season of larger consumption. We may have more of the comparatively mild weather but the temperatures will run a good deal lower than they did in October. Occasionally some spot lots were purchasable early last week at the former prices but for deliveries over November the refiners were reluctant to quote and when they did so asked a little more money, especially for the oils suitable for domestic oil burners even if the color was dark and the flash not specially low. They were all expecting a larger demand. Dealers here claimed that stocks were large and that it would take an active demand to make much impression on their supplies.

Fuel Oil Position Unchanged

Fuel oil was in much the same position as gas oil so far as the refiners were concerned. One refiner who has had a considerable accumulation stated that he was sold up and withdrew from the market for a while at least. Others stated that they were in pretty comfortable shape. To reach this position there have been some large contracts made and some sales put through that have placed a number of the larger users of fuel oil in a position to stay out of the market for a while.

The November requirements of most of the users have been cared for and they will wait until the next month before entering the market for additional supplies. There is a fair grist of orders going through from day to day, nothing large, but it keeps the sellers busy trying to get their share. The price situation seems to be a little stronger right now and it may strengthen with anything like a seasonable demand.

Colder weather adds to the use of oil for power, a consumption purely for heating purposes, and this is sufficient to make quite a difference in the total demand. Our enormous office buildings, hotels and theaters, department stores and the like use regularly a considerable quantity of fuel oil. One large hotel requires a truck load daily, another three

loads in two days and the tank trucks of the distributors are once more a common sight on the streets of both the downtown and outlying sections.

Many of these users call for the 28-30 gravity and few for anything lower than a 24-26 oil. The industrial demand for the heavy oils is just about fair. There is no real snap to business as yet. The October business of the steel concerns was light and there is even a suggestion that the prices obtainable can only be made profitable by a reduction in costs which means a reduction in wages. There is a rather distinct movement in that direction in the eastern manufacturing centers and the cotton industry has made a start. Undoubtedly the political element will enter into the wage question just as it has into the price of farm products.

Generally and in practically all lines there is a complaint of the business being done and even more regarding the profits that are made by concerns of average business.

Zero Oils at Premium

Railroad earnings are lower, but a good part of this is in the passenger department and especially from the income from the day coaches which decrease is attributed by some authorities on railroads to the increasing competition by autos and buses on short distances. On the higher gravities the range of quotations is rather wide, the zero oils commanding a premium. This is also true of the lower gravities but not to the same extent.

Sales of 28-30 gravity were made last week within a range of 95 cents to $1.05 while the market for the 24-26 gravity ranged from 80 to 85 cents although some buyers were able to secure supplies at a shade under the lower price. A good 24-26 fuel oil could be sold at 85 cents if the cold test was low and other qualities desirable while much of the lower-priced oil had a high cold test.

The Smackover situation is unchanged. Very little of the product is available here and that seems to be for the most part not desirable for the purposes for which Smackover has been used by distributors in previous seasons.

The lubricating oil situation is just rocking along as it has been. Very little change is noticeable. Of course, the sales of motor oils are much less but a fair to good seasonable business is reported in these oils with the better grades selling better than in previous seasons. This has been true all the season. Motorists are more generally demanding good lubricants and are more observant of qualities. The industrial demand is fairly good, not much to either brag or complain about.

There was no general change in the tank wagon market last week. As to the October business in a general way it was better than October a year ago but less than the September business. Some of the local managers hoped that when their final results came to them they would find that their October sales were as large as for September but this was not the case with larger organizations. Some local dealers did do more than in September, but the circumstances were exceptionally favorable for them.

Football Helps Sales

The football activities help some of the stations. Usually these stadiums are quiet localities, but in the days of a Big Ten game there are thousands of cars parked around the place and some need a fill, so it helps.

There is a good deal of uncertainty and restlessness in the distributing end of the business and there is a constant demand for something that will help the dealer meet the excessive competition that prevails and at least put an end to the building of more stations. Purchasing combinations may do something but they do not meet the demand for an antiknock product of high quality. Some of the larger dealers have put in testing equipment and are trying out various products and the more they study the situation the more uncertain they seem to be as to what will be the future developments of even the phase of the business that relates to the supply and demand for antiknock gasoline. Some have run along and lost business, believing that it was a passing fancy of the motorist. Others have tried shipments of various kinds with varied results. One dealer will state that a certain brand is all that is claimed for it by its refiner and more and another says that it is worse than worthless, has lost the dealer who tried it out a lot of customers. This uncertainty causes other dealers to do nothing in the way of supplying an antiknock gasoline except in some cases to stock a higher gravity. One large dealer still pins his faith on the 64-66 375 endpoint gasoline as capable of doing for the motorist anything that any antiknock gasoline will do. Some blend with natural gasoline or even benzol. So far the motor fuel of antiknock claims that has given the most satisfaction to motorists has been the ethyl gasoline and the demand from many dealers in the Standard of Indiana territory is for a knockless gasoline that is "equal to ethyl." In the other parts of the country ethyl gasoline is available to dealers, at least to a considerable extent, but in this territory the dealers are barred from selling the real product by an exclusive contract made when the product was new and very little tried.

OIL LUBRICATION FOR AUTOMOBILES

(Continued from Page 96-B)

speeds, at the present time, part of the price that must be paid for high speed is high oil consumption.

Starting Engine

The difficulty of starting a cold engine with heavy oil has already been discussed. Tests at the Bureau of Standards and also at our laboratory have shown that the force required to start an engine is proportional to the viscosity of the oil at the starting temperature. Since the viscosity of the oil on the cylinder walls has more effect than that of the oil in the bearings or crankcase, and since dilution occurs so rapidly in the oil on the cylinder walls, this factor has been very hard to study. However, these tests have demonstrated definitely that it is the viscosity of the oil under starting conditions and not the pour test or cold test of the oil that affects starting. The Saybolt viscosimeter indicates that if an oil is near or below its pour test its viscosity is very high. However, this is true only when the viscosimeter is operated under standard conditions of low pressure such as that due to the force of gravity. If the viscosimeter should be operated under high pressure, the effect of the pour test practically disappears. A light oil still appears to have a low viscosity, even if it is below its pour test. This means that the Saybolt viscosimeter does not correctly measure the viscosity of oil below its pour test. If the oil is used under conditions where the pressure is very low, such as where the oil flows to the inlet of oil pump by the force of gravity, the indications of the Saybolt viscosimeter may be correct. On the other hand, if the oil is used under conditions of high pressure, such as those experienced in bearings, the results obtained with the Saybolt viscosimeter when operated under standard conditions with oils of high pour test, may cause one to draw false conclusions.

Low Pour Test

Although engineers do not all agree on the importance of low pour test, I personally agree with the statement by C. W. Stratford in the booklet on "Lubricational of Internal Combustion Engines" to which I have previously referred. Mr. Stratford says:

"The chill or cold test of an oil is the lowest temperature at which oil will pour.

"Much discussion has centered about the importance of cold test qualities in lubricating oils, and there are still some who advocate cold test as a desideratum in engine lubricants, but with due respect to all opinions to the contrary, it must be stated as an irrefutable fact, supported by the results of hundreds of tests, that cold test has no direct bearing whatsoever on the lubricating or heat-resisting qualities of an engine oil.

"If an automobile engine must be exposed to extremely low temperatures in an unheated garage or out-of-doors, only oils having a cold test corresponding to the exposure temperature should be used. This is but another way of saying that when an engine is started, the lubricating oil with which it is supplied should be in the liquid state so as to freely enter the circulating pump."

It might be mentioned in this connection that the oil company which put out this booklet is not one interested in crudes from which oil with an inherent low pour test are obtained, and consequently, this company is not prejudiced in favor of low pour test by commercial conditions. Although the pour test or cold test appears to be important in determining whether or not an oil will flow to the pump intake, the viscosity of the oil at low temperatures and the pump design and location are also factors. In determining whether the oil will flow through the oil lines and bearing clearances after it is in the pump, the viscosity at low temperatures is of very great importance, with the pour test or cold test of little or no effect.

In this discussion we have shown that viscosity is an important property of oil. However, all oils change in viscosity very greatly due to changes of temperature, and yet we know that modern automobile engines operate fairly satisfactorily over a wide range of temperatures and corresponding oil viscosities. It is the aim of the automotive engineer to design his engine so that it will operate satisfactorily with a wide range of oils. In the instruction book furnished with the automobile, the engineer usually tries to recommend in a general way the type of oil that will give best results. In order to avoid discrimination it would be desirable to exclude trade names, simply specifying the body of oil and mentioning any other properties which may be considered important, such as pour test for very low temperatures and freedom from volatility for very high temperatures. The other properties, including everything known to the oil industry as "quality" of the oil, should be left to the oil companies. Unfortunately, the oil industry has not been able to agree upon what viscosities are represented by the terms light, medium and heavy, etc., and since trade names and advertising have been built up around these names it would be difficult to change them. To remedy this situation, committees from the American Society for Testing Materials and the Society of Automotive Engineers have developed the system known as the S.A.E. viscosity numbers by which oils of the different viscosities may be designated. If the oil companies would put these numbers on their oil cans and in their advertising in addition to the trade names which they now use, and if the same numbers should be used in the instruction books, it appears that much of the present confusion would be eliminated.

There are many other factors which affect lubrication, but if the automotive engineers could be sure that their engines were always lubricated with oils of the proper viscosity which would circulate to the bearing surfaces under all conditions, I am sure that they could depend upon the oil industry maintaining the quality of these oils in keeping with the reputations of the companies supplying them.

MAGNOLIA COMPLETES LINE FROM TANK FARM

SHREVEPORT, La., Nov. 7.—Magnolia Petroleum Co. has completed 6 miles of 4-inch line from Lege tank farm 6 miles northeast of El Dorado to its No. 1 Carroll in Section 1-17-14, to handle production from this and other wells planned in the new Champagnolle district of Union County, Arkansas. The line is running approximately 200 to 250 bbls. daily from the Carroll producer and was built to handle Magnolia's own production for the present.

A gathering line has been laid across the section to Ohio Oil Co.'s No. 1 Crain, but no production has been run from this lease yet. Ohio has produced about 25,000 bbls. of fluid from the Crain well and has treated out about 4,000 bbls. with an estimated 4 000 bbls. yet recoverable, using tret-o-lite. Oil from this well after treating averages about 20 gravity and the Ohio may not hook up to the Magnolia line, but keep it for fuel for future drilling operations in this territory where, with Pure Oil Co., it has most of the acreage in the potential new pool. The company's No. 2 Crain, in Section 1-17-14, which went to salt water soon after starting as a flowing well because of a bad casing seat, is still shut down waiting orders after cementing a string of 4½-inch at 3,020 feet.

Houston Oil Co. has taken up its 10-car loading rack at Herbert, its refinery station in Section 35-13-17, 2 miles south of Camden, Ark., and Standard Pipe Line Co. has reduced its 54-car rack in Section 6-16-16, to 10 cars capacity.

KANSAS FIELDS

(Continued from Page 44)

plugged back 10 feet and made 100 bbls. after the shot. Rogers and others' No. 2 Moore, Lot 9, Block 44, Section 3-26-10, is dry and abandoned at 1,998 feet. Wahn and others' No. 1 Old, Lot 4, Block 44, Section 3-26-10, was completed for 50 bbls. in sand 1,947-77 feet. B. G. & M. Oil Co.'s No. 1 Lewis, SW cor. NW SE, Section 26-27-8, is a dry hole at 2,906 feet.

Lyon County

Tulsa Oil Co. and others have the rig on the ground for No. 1 Vohs, NE cor. NW, Section 17-21-12.

Russell County

Keys Petroleum Co.'s No. 1 Baxter, SW cor. SE SE, Section 32-13-15w, was completed in sand 3,046-80 feet for 100 bbls. Streeter & Stearns' No. 1 Goraham, SE cor. NW, Section 6-15-15w, has been abandoned at 3,430 feet.

Saline County

Thrall and others' No. 1 Holquest, SE cor. NE NW, Section 15-15-4w, is a dry hole at 1,170 feet.

Sumner County

Globe Oil & Refining Co. made location for No. 1 Stout, SW cor. NE, Section 21-31-2. Roxana Petroleum Corp. is building the rig for No. 5 Wiles, NW cor. NE, Section 25-31-2. Location has been made for No. 5 Shore "B", NW cor. SW, Section 25-31-2. Jarvis and others' No. 1 Scrogging, Out Lot 22, Section 14-32-2e, Oxford townsite, is shut down at 1,700 feet. Roxana Petroleum Corp.'s No. 7 Community, Lot 7, Block 38, Section 14-32-2, is a rig under construction. Wasson and others' rig is being erected for No. 1 Glassway, NE cor. SE SW, Section 14-32-2. Barnsdall Oil Co. and others made location for No. 1 Wenrich, NE cor. NW, Section 23-32-2. Basom and others made location for No. 1 Melick, NE cor., Section 21-33-2.

Roxana Petroleum Corp.'s No. 5 Rutter, NE cor. SW NE, Section 25-31-2, had sand 1,850-1,901 feet and made 900 bbls. after the shot. No. 5 Mason, NW cor. SE NW, Section 25-31-2, was shot with 60 quarts and made 150 bbls. in sand 1,847-99 feet. Derby Oil Co.'s No. 1 Looker, Lot 2, Block 23, Section 11-32-2, is dry and abandoned at 2,188 feet. Roxana Petroleum Corp.'s No. 3 Community, Lot 6, Block 35, Section 11-32-2e, Oxford townsite, made 500 bbls. from sand 2,051-2,120 feet. Ramsey & Fine's No. 1, Oxford townsite, Lot 15, Block 24, Section 11-32-2, is a 30-bbl. well in sand 2,116-92 feet. Noble and others' No. 1, Oxford townsite, Lot 6, Block 32, Section 12-32-2, was completed for 30 bbls. in sand 2,138-62 feet.

Midco Oil Co.'s No. 1, Oxford townsite, Lot 20, Block 25, Section 12-32-2, made 30 bbls. after a shot in sand 2,132-2,206 feet. Roxana Petroleum Corp.'s No. 2 Emerich, Tract 5, Section 14-32-2, was completed for 500 bbls. in sand 1,966-2,088 feet. No. 1 Community, Block 53, Section 14-32-2, made 170 bbls. from sand 2,010-94 feet. No. 2 Nevitt, Tract 3, Section 14-32-2, was shot with 10 quarts and made 193 bbls. from sand 2,005-99 feet. Stanley & Jarvis' No. 1, Oxford townsite, Section 14-32-2, is making 800 bbls. from sand 1,994-2,094 feet.

Woodson County

Howard and others made location for No. 1 Riley, NW cor. SW, Section 31-25-14. Brinegar and others' No. 1 Rogers, SE cor. SW SE, Section 14-26-14, is spudding.

EASTERN BURBANK HAS PRODUCTIVE TREND

(Continued from Page 32)

and at least a part of its path has been traced.

The numerous dry holes which are located on the edges of the trend lines clearly indicate unusual conditions, for many of them are offsets to wells which had phenomenal output. At the latest Osage lease sale, the Skelly Oil Co. paid $550,000 for the SW, Section 27-27-6, and the trend lines run diagonally across the tract. They clearly establish the productive limits of the tract, for no oil has been found outside their lines, although wells within the lines have enjoyed good output.

The Kewanee Oil & Gas Co. has the lease upon the entire Section 34-27-6, across which the trend lines amble. Good wells have been completed on these tracts within the marks of the trend, and little has been uncovered outside them.

A. G. Oliphant and others' No. 2, in the NW cor. NE, Section 20-27-6, was located just slightly west of the trend, and gives further proof that the trend is a likely theory.

Continuing to the northwest, the Comar Oil Co. and Producers & Refiners Corp.'s lease in the SW, Section 8-27-6, finds a well in the SW cor. of the tract, and dry holes just across the trend line. The well in the corner produces over 1,000 bbls. when completed. The offsets were dry.

The Phillips Petroleum Co. has operated to excellent advantage in the Burbank Field, and one of its leases, the SE, Section 2-27-5, was a good producer. Although this tract had two wells with an initial output above the 1,000-bbl. class, the wells directly north of them were dry holes, and it will be noted that the trend line is situated between the wells and the dry holes.

It is possible that at some point close to the last named lease, the prehistoric river emptied into the lake, and from here, the trend line is a matter of speculation.

Regardless of the limits of the trend, the country to the east of the Burbank Field will generate a lively interest at the next public sale of Osage leases.

SHREVEPORT GEOLOGISTS PLAN WINTER PROGRAM

SHREVEPORT, La., Nov. 5.—The Shreveport Geological Society is planning an active winter's program for its regular monthly and special meetings. For several years the society has conducted field trips through southwest Arkansas and northeast Louisiana during the summer which attracted petroleum geologists from three states and added much to the store of available information. Also, with Prof. L. V. Howe, head of the geological department of the Louisiana State University, as the lecturer, it has conducted detailed studies of the major formations occurring in proven and prospective oil and gas territory of North Louisiana and South Arkansas.

This winter its program will be along a somewhat different line and with more attention to subjects of not quite so technical a character. It is planned to present several of the leaders of the profession in this territory in talks on topics of their own choosing, chief executives of the larger operating companies, and discussions of such subjects as, for instance, the air-gas lift, from the geologist's point of view or as such methods are affected by geological conditions in the area in which they are applied.

The first regular monthly meeting was held November 4, when S. P. Borden, who has lately gone into the operating end of the industry drilling two or three wildcats in northwestern Louisiana, presented a paper on "Valuation of Oil and Gas Properties," discussing the matter from the point of view of the banker and investor. Mr. Borden has done much research work of this character. In the near future the society will hear a discussion of the air-gas lift and it is also planned to hear from the chief executive of one of the major companies relative to administration of company affairs and oil and gas properties from "the boss'" point of view with possibly a few explanations of why certain things have been done or not done and why they were done just so and not by some other means.

Mississippi River flood control will be another major subject before the society at an early date, and as several of its members have done much work along the river and its tributaries in which they have collected considerable information bearing on the matter, they hope to be able to be of assistance to the Government in solving the problem.

HOUSE HEATING WITH GAS IN SOUTHWEST

(Continued from Page 97)

Naturally, this belief is due to the fact that the winters are comparatively mild and consequently the fuel bills are less than in colder climates. Also no credit is given the insulating material for its insulating properties in the summer time in making the house a more comfortable place in which to live.

In reality, house insulation has a 100 per cent load factor in that it is functioning 24 hours each day and 365 days each year, retarding the passage of heat from the home during the heating season and retarding the passage of heat into the home during the summer time. The value of house insulation does not depend upon climatic conditions, for in the colder climates, its greater value during the heating season is offset by its greater value during the warmer months of the year, while in the warmer climates its lesser value during the heating season is offset by its greater value during the warmer months of the year. The reason house insulation has been given so little credit in making the home a more comfortable place in which to live during the warmer months of the year is because this value is an intangible one and therefore cannot be stated in dollars and cents, whereas its value during the heating season is tangible and consequently can be stated in dollars and cents of fuel saved. When houses are cooled by gas refrigeration this intangible value will become a tangible one.

In addition to reducing the cost of heating, house insulation also makes the home a more comfortable and safer place in which to live, in that the floor is much warmer and the temperature differential between the floor and ceiling less than in an uninsulated house. Other features of house insulation, the values of which are intangible are its sound deadening and fire resisting qualities. No doubt in the future as the fire resisting qualities of house insulation become better known, the fire insurance rate will be materially reduced on certain types of house construction.

It is the opinion of the gas industry that the solution of the gas house heating problem is in better built homes, well insulated, for such construction reduces the maximum hourly demand on the distribution system, places gas for house heating within reach of the average home owner and, last but not least, helps to conserve the natural resources of this country. No less an authority than the late Charles P. Steinmetz, formerly consulting engineer for the General Electric Co., said in an address in Boston early in 1923:

"Our present structures are causing annual leakage costs of literally millions of dollars' worth of heat. The seriousness of this loss is not realized because it is not actually missed and cannot be specifically appreciated. But the loss is there and looms as a serious problem."

"The house of the future will be scientifically built from the standpoint of heating."

Educating the Public on Gas for House Heating

House heating with gas in equipment designed for gas is new to the public and consequently requires considerable pioneering work by the utility before much progress is noted. The greater part of this pioneering work is of an educational nature, and as is typical of such work, requires considerable time and money, and is absolutely necessary if marked progress is to be made in a reasonable length of time.

There are many mediums through which the utilities' message on house heating can be carried to the public, namely, billboards, window displays, calendars, letters, bill stuffers, speaking bureaus, booklets, newspapers and personal contact. They are all effective when properly handled and the ones best adapted for a given locality must be governed by local conditions. Most utilities find that window displays, personal solicitation and newspaper advertising are very effective in carrying the message of house heating with gas to the public.

Gas—The Ultimate Fuel for House Heating

Anthracite coal is considered the ideal solid fuel for house heating, due to its comparative cleanliness and burning properties. However, due to its ever increasing cost and uncertainty of supply, the softer coals and manufactured solid fuels have found a ready market for house heating. Homes have been heated for generations with solid fuels and it is only within recent years that liquid and gaseous fuels have been used to any extent. Now these latter fuels seem destined to supplant, to a great extent, the use of solid fuels in the home.

There is no denying the fact that oil has made wonderful progress in this field in recent years and, justly so, for it offers convenience, cleanliness and ease of control to a greater degree than solid fuels although at a higher cost, everything considered, including interest on the investment, depreciation, maintenance and operation.

There is no denying the fact that gas also has made wonderful progress in the house heating field during the last few years and justly so, for it offers convenience, cleanliness and ease of control to even a greater degree than liquid fuel and at a cost that compares quite favorably with solid fuels in the natural gas communities.

Gas is the ideal and ultimate fuel for house heating because it possesses the essential characteristics of an ideal fuel to a much greater degree than solid or liquid fuels. Its characteristic of cleanliness is real cleanliness, for it leaves no trace of its presence on the premises, either inside or out. Its characteristics of convenience is real convenience for it is at your service 24 hours each day and 365 days each year with no attention whatsoever on your part. Its characteristic of ease of control is real ease of control, for it is delivered in the final form to burn and therefore, does not have to be gasified, as all solid and liquid fuels do before combustion can take place. You need no miniature gas plant in your basement, accompanied by its complications and uncleanliness, when gas is the fuel used.

In addition to the above characteristics, which gas possesses to the nth degree, it has many other advantages over solid and liquid fuels. It requires no space for storage on the premises and, therefore, entails no investment for future supply. In fact, gas is first used, then paid for. Its use is accompanied by a fire hazard to a lesser degree than other fuels, due to the fact that it is confined in iron pipes and is not subject to spontaneous combustion. And lastly, its use tends to conserve the natural resources of this country, which, when recovered in the process of making, gas makes these fuels far more valuable than their market price for heating purposes.

ROCKY MOUNTAIN AREA

(Continued from Page 130)

drill opened a small pocket of oil in the sand and this pocket being hemmed in by a tight lense, it could not make a commercial showing.

The Carter Oil Co. recently brought in a small producer in the Sunburst Field that had a showing in the Ellis sand. A shot of 60 quarts appeared to dry up the showing so a shot of 100 quarts was tried in an effort to break through the supposed hard streak in the sand. Nothing resulted from the heavier shot and a third shot of 10 quarts was tried in order to bring in the packed mass of sand that was on the wall of the shot hole.

After the well was cleaned out, the hole was pronounced a duster, but R. E. Mackey, field superintendent of the Carter company, refused to abide by the general decision and with the consent of Ralph Loucks, general manager for the Carter in this territory, Mr. Macey purchased 150 pounds of lye and placed it in the well after making a solution in hot water.

The results were surprising, the dry hole started to make a little production and has steadily increased until it is making 15 bbls. daily and growing larger.

This experiment is expected to make a great change in the procedure of abandoning wells in Sunburst after a shot appears to have dried them up. The action of the hot lye solution is to form an emulsion with the oil and water which appears to break down the dam created by the heat of the shot and allow the oil back in the sand to enter the shot hole.

Sunburst Field

In the Sunburst Field, the derrick and machinery of the Radigan-Hungerford well on Section 12-34-2 was destroyed by fire as well as a tank of oil, the loss being estimated at $4,000. A new derrick and equipment is being placed.

The new well of the Dakota Montana Oil Co. on Section 7-34-1, reported last week, is producing at the rate of 200 bbls. daily and appears to be gaining a little on this figure since the production for the past few days was slightly over 200 bbls.

During the past week, the Mouse River Oil Co. brought in a new producer on the Putnam lease, but the well is to be shot and no estimate of its capacity can be had now. The Munger & O'Connell well on the Byrne will also make a small producer after being shot and the National Oil Co.'s No. 5 Harte will make a 15-bbl. pumper at 1,420 feet. The Homestake Exploration Co.'s No. 42 is a dry hole and casing is being pulled.

The California Petroleum Co.'s deep test on the Lashbaugh has reached a depth of 3,100 feet and found an additional gas flow that makes it a commercial gasser. Drilling is to be continued to test lower formations.

In the Cat Creek Field, the Continental Oil Co. has a producer good for 15 bbls. on the Greene lease, Section 14-15-29.

Ivan DeLashmutt, geologist for the Big West Oil Co. in Montana fields, was killed while examining a well in the Sunburst Field. He had gone alone to the well to see what oil it was making when in some unknown manner the walking beam fell and caught the geologist. Death was probably instantaneous.

ROCKY MOUNTAIN PRODUCTION
Runs From the Fields

Wyoming	
Salt Creek	33,390
Teapot	930
Big Muddy	2,820
Grass Creek	2,690
Elk Basin	1,110
Greybull	20
Dutton Creek	20
Notches	170
Rock River	2,710
Rex Lake	130
Lance Creek	1,300
LaBarge	510
Mule Creek	660
Polson Spider	560
Hamilton	10
Osage	310
Lander	960
Pilot Butte	270
Ferris	40
Byron	90
Lost Soldier	2,480
Simpson Ridge	70
Total Wyoming	51,850
Montana	
Cat Creek	1,960
Lake Basin	230
Kevin-Sunburst	11,500
Total Montana	13,690
Colorado	
Florence	1,087
Moffat	1,448
Fort Collins	2,537
Walden	109
Iles Dome	477
Rangely	100
Tow Creek	448
Boulder	25
Total Colorado	6,231
New Mexico	
Rattlesnake	...
Hogback	290
Cap Rock	101
Table Mesa	71
Artesia	1,245
Total New Mexico	1,737
Total Rocky Mountain	73,498

REFINING AND MARKETING

Indiana Standard's New Agreement for Authorized Agents

CHICAGO, Ill., Nov. 5.—The Standard Oil Co. of Indiana is said to have a new trial contract in force at a few locations called the "Authorized Agent Agreement." This is a modification of the present "Drive-in Service Station Agreement" and the terms of the new contract provide a minimum monthly commission of 2½ cents per gallon on gasoline and the difference between the posted wholesale and retail prices on lubricants and greases. These commissions are increased with increased quantity sales and in addition to these monthly commissions one is paid at the end of the year on quantity sales which have not already participated in the monthly commissions.

Contract Terms

Following are the provisions of the contract covering the sale of gasoline, motor fuel, lubricants and petroleum products generally:

"1. Second party shall give his exclusive time and attention to said employment (except as hereinafter specified) and shall operate said service station in compliance with the rules and regulations of first party in a manner satisfactory to and at the will of said first party.

"2. First party shall keep said service station fully supplied with gasoline, motor fuel, lubricants and other petroleum products which second party shall sell for cash for the account of first party, at prices established by it, remitting therefor (less his earned commission) at the time the supply of each product is replenished. Second party may extend credit for products purchased to persons whose names are furnished him in writing by party of the first part as entitled to credit but second party shall be personally responsible for payment in cash for sales to all other persons.

"3. Second party shall have the privilege of handling and dealing in automobile accessories on said premises but shall not permit said business to interfere with his sales of the products of first party or his duties under this agreement while in first party's employment.

"4. In consideration of said services the first party agrees to pay to the second party a commission of two and one-half (2½) cents per gallon for gasoline sold by the second party for first party at said service station, to be paid upon all such sales at the time of replenishment.

"5. Should sales of gasoline in any one calendar month amount to more than six thousand (6,000) gallons, an additional commission shall be paid in accordance with the following schedule—to be paid not later than the fifteenth (15) of the month following:

Gasoline

Over 6,000 gallons per calendar month, one-half cent per gallon; over 10,000 gallons per calendar month, 1 cent per gallon; over 15,000 gallons per calendar month, 2 cents per gallon.

"At the end of the year the whole amount of gasoline sold during the year will be computed and a commission additional to the 2½-cent per gallon paid thereon in case his entire sales amount to the quantity shown below and at the rates of commission shown, less any amount in excess of 2½ cents per gallon that may have been paid monthly in accordance with the monthly additional commission schedule shown above:

Over 72 000 gallons per year, one-half cent per gallon; over 120,000 gallons per year, 1 cent per gallon; over 180 000 gallons per year, 2 cents per gallon.

"Motor oils, greases, and specialty products shall be sold in accordance with 'Retail Price List' attached hereto and second party shall be paid commissions representing the difference between such retail prices and 'Wholesale Price List' also attached hereto. Commissions being paid at time of remittance for and replenishment of these products. An additional commission on motor oils and greases based on quantity sold will be paid at end of six months' period as outlined in Wholesale Price List hereto attached. Either 'retail' or 'wholesale' prices are subject to change at any time by first party.

"6. Second party shall be responsible for all loss or damage to products furnished by first party while in his possession as agent and shall account for said products as if sold."

WITHERSPOON KEEPS STATION

SAN ANTONIO, Tex., Nov. 5.—The Witherspoon Refining Co. will continue to operate its filling station in this city according to an official announcement. It has previously been reported that the station would be sold as result of the merger of its properties with the Texas Petroleum Products Co.

BUYS WEST TEXAS CRUDE

NEW YORK, Nov. 5.—The Standard Oil Co. of New Jersey has contracted with Humble Oil & Refining Co. for several million barrels of West Texas crude. Deliveries have started from Humble's terminal at Corpus Christi.

NEBRASKA OIL MEN MEET

The annual state convention of the Independent Oil Men of Nebraska has been announced for December 14 and 15 at the Hotel Fontenelle, at Omaha, Neb. The program for the meeting will be announced in the near future.

NEW SUPER-STATION FIRST IN TULSA FOR MID-CONTINENT CORP.

The Mid-Continent Petroleum Corp. within the next 30 days will start construction work in Tulsa on what is expected to be the largest and most elaborate drive-in filling station in Oklahoma. The erection of the station will mark the entry of the Mid-Continent corporation as a filling station operator in Tulsa.

Although the corporation (formerly Cosden & Co.) for years in West Tulsa has had the largest refinery in the Mid-Continent Field, it has never had retail distribution in Tulsa or other consuming centers of Oklahoma. During the past three years the corporation has rapidly increased its market outlets through bulk stations and filling stations. Most of these stations are located at middle western points.

The super-station to be built in Tulsa will be located at Fifth Street and Cincinnati within the main business district. The location which is across the street from the new Chamber of Commerce and Tulsa Club building and the new Philtower building was purchased last fall. The station will have 12 pumps and 3 driveways with large grease rack facilities. When completed several special service features will be announced.

PENNSYLVANIA OPPOSES MID-CONTINENT RATES

OIL CITY, Pa., Nov. 5.—The Northwest Pennsylvania Oil Producers Association in a letter to Gov. John S. Fisher of Pennsylvania made known their opposition to the proposed reduction in freight rates on petroleum products from the Mid-Continent to eastern points. This proposed reduction is now before the Interstate Commerce Commission through action of the Mid-Continent Refiners Traffic Association and the Transcontinental Oil Co.

In their letter the producers take the position that any lowering of the present rate structure from Mid-Continent refiners will mean a lowering in the value of Pennsylvania crude oil and refined products. After a lengthy explanation of the rail rate situation the letter closes with the following statement:

"Your petitioners aver on information and belief that the said reduction of rates will create rates which will be per se unreasonably low and would give an undue and unreasonable preference and advantage to refiners and producers situated in the Mid-Continent and southwestern territory and would subject to an undue and unreasonable prejudice and disadvantage the refiners and producers in the territory east of the Indiana-Illinois state line and both north and south of the Ohio River, including especially the commonwealth of Pennsylvania."

PREMIUM IS OFFERED FOR SMACKOVER OIL

SHREVEPORT, La., Nov. 7—Coming of cold weather with accompanying increase in demand for fuel oil and necessity of offering some inducement to effect connections are mentioned as the cause for recent offers of 10 cents premium on Smackover heavy oil by independent buyers. Premiums above the posted price are nothing new in Smackover, they having been offered by independents from time to time during the entire life of the field.

Two of the largest transactions of this sort recorded recently were reported last week when H. H. Cross contracted for 75,000 bbls. of heavy oil at $1 per barrel, 10 cents over the market, for delivery at the rate of 10,000 bbls. daily, and Shreveport-El Dorado Pipe Line Co. took over all Southern Pipe Line Co.'s connections, running an average of 3,100 bbls. daily at the same price.

This week Root Refineries contracted with Kettle Creek Refining Co. to take all the latter's runs, averaging 1,450 bbls. daily, for an indefinite period at a 10-cent premium. Speith Oil & Pipe Line Co., which has been running an average of 1,400 bbls. daily to the Lion Oil Refining Co.'s plant at El Dorado at a 5-cent premium has contracted with Louisiana Oil Refining Corp. to deliver the same amount to it.

UNIVERSAL-STANDARD HEARING IN PROGRESS

ST. LOUIS, Mo., Nov. 5.—The thirteenth hearing in the suit of the Universal Oil Products Co. against the Standard Oil Co. of Indiana is now under way at the Statler Hotel. This case which has been in the courts since 1913 involves the alleged infringement of patents owned by the plaintiff company in the operation of the Burton cracking stills at the Standard of Indiana refineries.

Rebuttal testimony is now being taken. Dr. Gustav Egloff of the Universal company was presenting testimony today. The plaintiff's counsel consists of Frank L. Belknap, chief counsel; Senator James A. Reed, Alexander F. Reichman, William F. Hall and Charles W. German. The Standard is represented by Russel Wiles, Harry F. Daugherty, George Haight and Horace Dawson.

U. S. FUEL CONTRACTS ON THE PACIFIC COAST

WASHINGTON, D. C., Nov. 5.—Contracts to supply the United States Shipping Board vessels operating on the Pacific with 3,500,000 bbls. of fuel oil have been awarded to the Richfield Oil Co. of Los Angeles. The contract price for this oil is 78½ cents per barrel for delivery at specified terminals. The price is 83 cents per barrel for delivery to the ship's side. The contract runs for 12 months beginning November 7.

Of the full amount of the contract 2,750,000 bbls. of oil are to be delivered to Shipping Board tankers at the terminal of the contractor at San Pedro. This is the oil contracted for at 78½ cents and this portion includes oil for bunkering tankers loading at the terminal.

Of the entire quantity to be delivered 750,000 bbls. are for bunkering Shipping Board vessels at the San Pedro terminal and that is the oil for which 83 cents per barrel is charged. Wherever the vessel can go to the terminal the price will be 78½ cents.

PLENTY OF OIL FOR BURNERS, SAYS TEAGLE

NEW YORK, Nov. 5.—There will be plenty of oil available for an indefinite period to furnish all the distillates needed for domestic burners, according to Walter C. Teagle, president of the Standard Oil Co. of New Jersey. In a letter to the Oil Heating Institute, Mr. Teagle commends the efforts of that organization to increase the utilization of oil as fuel in homes.

Relative to the future supply of oil for this use, Mr. Teagle wrote:

"I have full faith in the ability of the oil industry to meet the growing demand for oil for domestic heating purposes. The experience of the last generation plus the best forecast which science can make for the coming generation justifies such faith. The modern domestic oil burner is a kind of household heating service which gas alone has supplied in the past, and in the country as a whole it gives that service cheaper.

"In my opinion, oil heating will not only supplant gas, which is its present sole competitor, but, like the gasoline automobile, establish a new standard of American home life and fix a level of comfort and convenience never before attained by any civilization and at a price well below the limit of its economic value for that use."

CAMERON REFINERY GOES TO WIRT FRANKLIN CORP.

The Cameron Refining Co., of Ardmore, Okla., is now a part of the Wirt Franklin Oil Corp., a new corporation which was recently organized under the laws of Delaware. The corporation is the result of the merger of the Cameron properties, the Knox Petroleum Co., Gravin Drilling Co. and other properties in South Oklahoma. The Cameron company has operated a 5,000-bbl. refinery at Ardmore for several years.

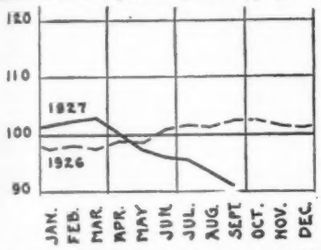
The officers of the Wirt Franklin Oil Corp. are: Wirt Franklin, president; Walter H. Gant, vice president, and P. C. Dingle, treasurer. The corporation has an authorized capitalization of $10,000,000 with $5,000,000 outstanding.

Brief Items for Plant Operators

PER CENT OF REFINERY EMPLOYMENT SMALLER

Refinery employment decreased during September and over the last year according to statistics just issued by the United States Department of Labor. The report shows a decrease in the number of men employed at reporting refineries from 48,850 in August, to 47,607 in September. This represents a decrease of 2.6 per cent.

The total of all industries showed an increase in the percentage of employment



Per Cent of Refinery Employment with 1923 as basis.

of .7 per cent. Comparing the September figures of this year and last, the employment has decreased 11.3 per cent at refineries and 4.6 per cent in all industries. The per capita earnings during the year have decreased .3 per cent for the refinery personnel while the decrease in the total number of industries has decreased .1 per cent. The decrease in refinery employment this year is probably a development of the general depression in the oil industry. Due to the low prices prevailing for refined products the general policy of refinery operators has been to reduce their construction and operating personnel as much as possible.

The trend in the refinery employment over 1926 and to October 1 of this year may be seen in the accompanying graph.

PLANT AT WICKETT, TEX., IS UNDER CONSTRUCTION

Construction work is now under way at the topping plant of the Bluebonnet Oil & Refining Co., located at Wickett, Tex. The plant when completed will have a capacity of 4,000 bbls. daily. The town of Wickett is located in Winkler County, south of the new Winkler County Pool on the Texas Pacific Railroad.

The construction of the plant is in charge of I. B. Chittenden who recently resigned as superintendent of the Fort Worth refinery of the Texas Pacific Coal & Oil Co. The plant consists of a pipe still with bubble towers.

It was reported recently that the Bluebonnett company, which has its headquarters in Luling, was a subsidiary of the Southern Crude Oil Purchasing Co. There is no relationship between the two companies, according to John T. Withers, Jr., president of the Bluebonnett company.

NEW REFINERY AT HAVRE, MONT.

A new 750-bbl. refinery at Havre, Mont., has started operation under the name of the Milk River Refining Co. At present the plant is skimming the crude supplied from the Sunburst Field but the company anticipates adding equipment in the near future to manufacture lubricating oils.

Recent Patents

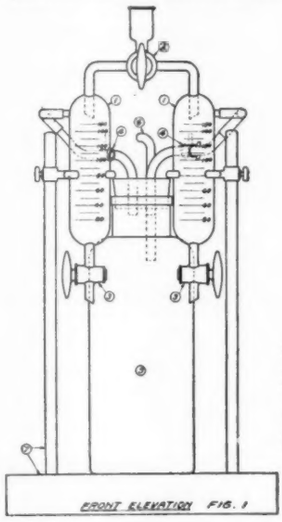
(Recent Patents on Page 172)

NEW LABORATORY APPARATUS FOR FRACTIONAL DISTILLATION

*By Jacque C. Morrell and Gustav Egloff
Universal Oil Products Co., Chicago.

Several years ago the authors described a new form of apparatus for the fractional distillation of liquid mixtures under reduced pressure. The present contribution relates to a modification of this apparatus, which is more convenient in form for general laboratory use than the original apparatus.

Figure 1 shows the front elevation of the modified apparatus. The receivers are mounted vertically at the same elevation instead of being placed one directly above the other. The operation of the apparatus is similar to that of the original design. A three-way mercury-sealed stopcock (2) with large passageways controls the flow of the distillate to the receivers. When a fraction has collected in one of the receivers, stopcock (2) is turned so that the distillate flows to the other. Stopcock (4), also a three-way stopcock, is then opened to the atmosphere and closed to the equalizing or stabilizing reservoir connected to the vacuum pump. This change permits the withdrawal of the fraction from the receiver through the drawoff stopcock (3). The second fraction is collected and withdrawn similarly. After a fraction has been removed the receiver is gradually connected with the stabilizing reservoir by means of stopcock (4) to reduce the pressure to that of the system.


FRONT ELEVATION FIG. 1

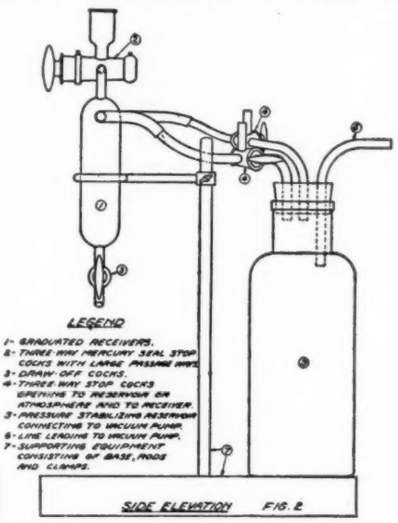

LEGEND
1- GRADUATED RECEIVERS.
2- THREE-WAY MERCURY SEAL STOP COCKS WITH LARGE PASSAGE WAYS.
3- DRAW-OFF COCKS.
4- THREE WAY STOP COCKS OPENING TO RESERVOIR OR ATMOSPHERE AND TO RECEIVER.
5- PRESSURE STABILIZING RESERVOIR CONNECTING TO VACUUM PUMP.
6- LINE LEADING TO VACUUM PUMP.
7- SUPPORTING EQUIPMENT CONSISTING OF BASE, RODS AND CLAMPS.
SIDE ELEVATION FIG. 2

Figure 2 is a side elevation of the same apparatus that shows more clearly the arrangement of the equalizing bottle (5) and the stopcocks (4) for connecting the receiver with the system or the atmosphere.

The writers wish to acknowledge a suggestion of B. M. McClure, formerly of this laboratory, in the conversion of the original apparatus to the present form.

*Presented at Detroit meeting of American Chemical Society and republished from Industrial and Engineering Chemistry.

AMONG THE TECHNICAL MEN

J. H. Hutchinson, general superintendent of refineries for the Cushing Refining & Gasoline Co., Cushing, Okla., has obtained practically all his experience at plants located in Oklahoma.

J. H. Hutchinson

His first refinery employment was in 1912 at the Cushing, Okla., refinery of the Shaeffer Oil & Refining Co. He spent four years at this plant obtaining practical training in several phases of refinery operation. This included firing boilers, stills and treating. He was also employed for a time in various capacities in the refinery's lubricating oil plant.

After spending two years in the Kern River and Bakersfield areas of California, where he was engaged in field work, he returned to the Mid-Continent in 1918. He was for a time connected with the refinery of the Shote Oil Corp. at Oklahoma City and later was assistant superintendent of Great American Refining Co.'s refinery at Jennings, Okla.

Mr. Hutchinson served with the army during the World War. Following the war he was assistant superintendent of the Blackwell, Okla., refinery of the Modern Refining Co. He was also employed for a time at the Enid, Okla., refinery of the Bolene Refining Co. and the Donnelly Oil Works at Blackwell. He continued as superintendent of the latter plant when it was purchased in 1923 by the Cushing Refining & Gasoline Co. Later he was placed in general charge of the Blackwell plant and also one located at Cushing. Mr. Hutchinson maintains his headquarters at Blackwell.

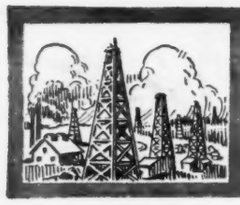
Ethyl Corporation Lowers Distillation Range of Gasoline

The trend toward more volatile gasolines for domestic markets now includes ethyl gasoline as a result of the new contracts of the Ethyl Gasoline Corp. with the distributors of the product. The new contracts provide a minimum end-point throughout the year of 425 degrees Fahrenheit. For the summer season starting April 3 and ending October 1 the specifications are changed so that the 5 per cent point is 158 degrees Fahrenheit and the 20 per cent point as 212 degrees Fahrenheit. For the winter season which extends from October 2 to April 2 the requirement is 7 per cent off at 158 degrees Fahrenheit and 22 per cent off at 212 degrees Fahrenheit. These latter specifications are now in effect in all new contracts.

In the past the only requirement of the Ethyl Gasoline Corp. as to distillation range was that the gasoline before it was ethylized must conform to the Government specifications for U. S. Motor gasoline. The Government specification for this grade of gasoline does not include a 5 per cent requirement between the initial of 131 degrees Fahrenheit and 20 per cent off at 221 degrees Fahrenheit. To conform to this initial and 20 per cent requirement of U. S. Motor gasoline the 5 per cent point generally has a maximum of 170 degrees Fahrenheit. Thus with the new specification for ethyl gasoline in summer the 5 per cent point has been lowered 12 degrees Fahrenheit and the 20 per cent point 9 degrees Fahrenheit. For the winter fuel the distillation range has been lowered 22 degrees Fahrenheit at the 7 per cent point and 18 degrees Fahrenheit at the 22 per cent point.

The action of the Ethyl Gasoline Corp. carries out a prediction heard from many refiners and marketers during the past few months. There has been a general trend during the past year toward the manufacture and distribution of gasolines which have a lower distillation range than required by U. S. Motor specifications. This has been specially apparent in the distillation range up to the 30 per cent point and the endpoint.

The advantage claimed for the more volatile motor fuels from the automobile driver's standpoint is quicker start and greater acceleration. Many marketers who are not distributors of ethyl gasoline have emphasized these characteristics in selling gasoline in competition with ethyl gasoline. The action of the Ethyl Gasoline Corp. apparently is a recognition of the desirability of adding ease in starting and acceleration to the antiknock properties of ethyl gasoline.



REFINERY AND CRUDE PRICES

Quotations on Principal Refined Products and Crude Petroleum Markets in All the American Oil Fields

GASOLINE AND NAPHTHA

	Nov. 8		Nov. 1		Oct. 25	
OKLAHOMA (Group 3)—						
50-52 450 endpoint	.05¾	.06	.05¾	.06	.05¾	.06
56-58 450 endpoint	.05¾		.05¾		.05¾	
58-60 450 endpoint	.05¾		.05¾		.05¾	
58-60 437 endpoint U. S. Motor)	.06	.06¼	.06	.06¼	.06	.06¼
60-62 400 endpoint	.06½	.06⅝	.06½	.06⅝	.06½	.06⅝
64-66 375 endpoint	.06¾	.07	.06¾	.07	.06¾	.07
68-70 360 endpoint	.07⅛	.07¼	.07⅛	.07¼	.07⅛	.07¼
64-66 437 endpoint (blend)	.06	.06¼	.06	.06¼	.06	.06¼
KANSAS—						
58-60 437 endpoint (U. S. Motor)	.06¼	.06⅜	.06¼	.06⅜	.06¼	.06⅜
NORTH TEXAS—						
56-58 450 endpoint	.05¾		.05¾		.05¾	
58-60 450 endpoint	.05¾	.05⅞	.05¾	.05⅞	.05¾	.05⅞
58-60 437 endpoint (U. S. Motor)	.06	.06⅛	.06	.06⅛	.06	.06⅛
60-62 400 endpoint	.06⅜	.06½	.06⅜	.06½	.06⅜	.06½
64-66 390 endpoint	.06⅝		.06⅝		.06⅝	
64-66 375 endpoint	.06¾	.07	.06¾		.06¾	
68-70 360 endpoint	.06⅞		.07¼		.07¼	
64-66 437 endpoint (blend)	.06¼		.06		.06	
NORTH LOUISIANA—						
58-60 437 endpoint (U. S. Motor)	.06½		.06½		.06½	
ARKANSAS—						
58-60 437 endpoint (U. S. Motor)	.06½		06½		.06½	
PENNSYLVANIA—						
52-54 Naphtha	.07⅜	.07½	.07⅜	.07½	.07⅜	.07½
54-56 Naphtha	.08	.08¼	.08	.08¼	.08	.08¼
58-60 Gasoline	.08	.08¼	.08	.08¼	.08	.08¼
60 Gasoline	.08¼	.08¾	.08½	.08¾	.08½	.08¾
62 Gasoline	.08⅞	.09¼	.08⅞	.09¼	.09⅛	.09¼
64 Gasoline	.09¼	.09½	.09¼	.09½	.09¼	.09½
CALIFORNIA—						
58-60 437 endpoint (U. S. Motor) domestic	.08	.08½	.08	.08½	.08	.08½
CHICAGO DISTRICT (Based on Group 3)—						
50-52 450 endpoint (Naphtha)	.05⅞	.06	.06		.06	
56-58 450 endpoint	.05⅞	.06	.05⅞	.06	.05⅞	.06
58-60 437 endpoint (U. S. Motor)	.06	.06¼	.06	.06¼	.06	.06¼
60-62 400 endpoint	.06½	.06⅝	.06½	.06⅝	.06⅝	.06¾
64-66 375 endpoint	.07		.07		.07	.07⅛
68-70 360 endpoint	.07¼	.07⅜	.07¼	.07⅜	.07¼	.07⅜
64-66 437 endpoint (blend)	.06¼		.06⅛	.06⅜	.06⅛	.06⅜

NATURAL GASOLINE

	Nov. 8		Nov. 1		Oct. 25	
OKLAHOMA (Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.05⅞	.06	.06	.06¼	.06	.06¼
Grade AA, 80-87.9, 375 e.p., rec. 90%	.05⅞		.06	.06⅛	.06	.06⅛
Grade B, 76-83.9, 375 e.p., rec. 85%	.05¾		.05¾		.05¾	
Grade BB, 84-92, 375 e.p., rec. 85%	.05¾		.05¾		.05¾	
Grade C, 80-92, 375 e.p., rec. 78%	.05½	.05⅝	.05⅝		.05⅝	
NORTH TEXAS—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.05⅞		.06	.06¼	.06	.06¼
Grade AA, 80-87.9, 375 e p., rec. 90%	.05⅞		.06		.06	
Grade B, 76-83.9, 375 e.p., rec. 85%	.05¾		.05¾		.05¾	
Grade BB, 84-92, 375 e.p., rec. 85%	.05¾		.05¾		.05¾	
Grade C, 80-92, 375 e.p., rec. 78%	.05½	.05⅝	.05½	.05⅝	.05½	.05⅝
NORTH LOUISIANA—						
Grade AA, 80-87, 375 e.p., rec. 90%	.06⅛		.06⅛		.06⅛	.06¼
Grade BB, 84-92, 375 e.p., rec. 85%	.06		.06		.06	
Grade C, 80-92, 375 e.p., rec. 78%	.05½		.05½		.05¾	
CALIFORNIA—						
75-85, 375 390 endpoint	.09	.09½	.09	.09½	.09	.09½
CHICAGO DISTRICT (Based on Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.05⅞	.06⅛	.06	.06⅛	.06	.06⅛
Grade AA, 80-87.9, 375 e.p., rec. 90%	.05⅞		.06		.06	
Grade B, 76-83.9, 375 e.p., rec. 85%	.05¾		.05¾		.05¾	
Grade BB, 84-92, 375 e.p., rec. 85%	.05¾		.05¾		.05¾	
Grade C, 80-90, 375 e.p., rec. 78%	.05½	.05⅝	.05½	.05⅝	.05½	.05⅝

Note: All natural gasoline, except California, is noncorrosive.

BURNING OIL

	Nov. 8		Nov. 1		Oct. 25	
KANSAS—						
41-43 water white Kerosene	.04¾	.05	.04¾	.05	.04¾	.05
OKLAHOMA (Group 3)—						
41-43 water white Kerosene	.04⅝	.04¾	.04⅝	.04¾	.04⅝	.04¾
42-44 water white Kerosene	.05		.05		.05	
NORTH LOUISIANA—						
41-43 prime white Kerosene	.04¾		.04¾		.04¾	
NORTH TEXAS—						
41-43 water white Kerosene	.04⅝		.04⅝		.04⅝	
40-42 water white Kerosene	.04⅜	.04½	.04⅜	.04½	.04⅜	.04½
ARKANSAS——						
41-43 water white Kerosene	.04½		.04½		.04½	
PENNSYLVANIA—						
43 Kerosene prime white	.06¼	.06½	.06½	.06¾	.06¼	.06½
45 Kerosene water white	.06⅛	.06⅜	.06⅝	.06¾	.06¾	.07
46 Kerosene water white	.06¾	.07	.07	.07¼	.07¼	.07½
47 Kerosene water white	.07	.07¼	.07¼	.07½	.07½	.07¾
300 Mineral Seal	.07¼	.07½	.07¼	.07½	.07¼	.07½
CALIFORNIA—						
38-40 water white Kero. (high burning test)	.05½	.06	.05¼	.06	.05¼	.06
Engine distillate, 43-45 445 endpoint	.07	.07¾	.07¼	.08	.07¼	.08
Engine distillate, 42-44 480 endpoint	.06¾	.07	.07	.07¼	.07	.07¼
CHICAGO DISTRICT (Based on Group 3)—						
41-43 water white Kerosene	.04½	.04⅝	.04⅝	.04¾	.04⅝	.04¾
42-44 water white Kerosene	.05		.05	.05¼	.05	

FUEL OILS

	Nov. 8		Nov. 1		Oct. 25	
KANSAS—						
22-26 Fuel Oil	.82½	.87½	.85	.92½	.85	.92½
18-22 Fuel Oil	.80	.82½	.80½	.85	.80½	.85
32-36 Gas Oil	.02⅝		.02⅝		.02⅝	
38-40 Distillate	.03¼	.03⅜	.03¼	.03⅜	.03¼	.03⅜
OKLAHOMA (Group 3)—						
Below 18 Fuel Oil	.72½	.75	.72½	.75	.72½	.75
18-22 Fuel Oil	.77½	.80	.77½	.80	.77½	.80
22-26 Fuel Oil	.80	.82½	.80	.82½	.80	.82½
24-26 Fuel Oil	.82½	.85	.82½	.85	.82½	.85
26-30 Fuel Oil	.87½		.87½		.87½	
28-30 Fuel Oil	.92½	.95	.92½	.95	.92½	.95
32-36 Gas Oil (dark)	.02½		.02½		.02½	
32-36 Gas Oil (straw overhead)	.02⅝		.02⅝		.02⅝	
36-38 Distillate	.03	.03⅛	.03	.03⅛	.03	.03⅛
38-40 Straw Distillate	.03⅛	.03¼	.03⅛	.03¼	.03⅛	.03¼
NORTH TEXAS—						
24-26 Fuel Oil (sellers' cars)	.80	.82½	.80	.82½	.80	.82½
32-36 Gas Oil (straw)	.02¼	.02½	.02¼	.02½	.02¼	.02½
38-40 Straw Distillate	.03	.03⅛	.03	.03⅛	.03	.03⅛
NORTH LOUISIANA—						
18-20 Fuel Oil	1.05	1.10	1.05	1.10	1.05	1.10
32-36 Gas Oil	.03	.03¼	.03	.03¼	.02¾	.03
ARKANSAS—						
36-38 Distillate	.03¼	.03½	.03¼	.03½	.03¼	.03½
32-36 Gas Oil (straw)	.03¼		.03¼		.03¼	
16-20 Refinery Fuel Oil	1.00	1.05	1.00	1.05	1.00	1.05
GULF COAST (South Texas)—						
Gas Oil	.03⅞	.04	.04		.04	
Fuel Oil	1.35	1.40	1.45	1.50	1.55	1.60
PENNSYLVANIA—						
30-34 Fuel Oil	.04¼	.04½	.04¼	.04½	.04¼	.04½
36-40 Fuel Oil	.04⅜	.04⅝	.04⅜	.04⅝	.04⅜	.04⅝
CALIFORNIA—						
33-36 Distillate	.03½	.03¾	.03½	.03¾	.03½	.03¾
27-32 Distillate	.02¾	.03¼	.02¾	.03¼	.02¾	.03¼
*15-20 Fuel Oil, Bunkers (at tide water)	1.00		1.00		1.00	
15-20 Fuel Oil (cargo lots)	.90		.90		.90	
27 plus Diesel	1.15	1.19	1.15	1.19	1.15	1.19
CHICAGO DISTRICT (Based on Group 3)—						
24-26 Fuel Oil (sellers' cars) Group 3	.80	.85	.80	.85	.82½	.85
22-26 Fuel Oil (sellers' cars) Group 3	.80	.82½	.80	.82½	.80	.82½
18-22 (Group 3)	.77½	.80	.77½	.80	.77½	.80
16-20 Smackover	1.00	1.02½	1.00	1.05	1.00	1.05
32-36 Gas Oil (zero)	.02⅝	.03	.02⅝	.03	.02¾	.03
32-36 Gas Oil (industrial)	.02½	.02⅝	.02½	.02⅝	.02½	.02⅝
36-38 Distillate	.03	.03⅛	.03⅛	.03¼	.03¼	.03¼
38-40 Straw Distillate	.03⅛	.03¼	.03¼	.03⅜	.03¼	.03⅜

*Bunkers.

LUBRICATING OIL AND WAX

	Nov. 8		Nov. 1		Oct. 25	
OKLAHOMA (Group 3)—						
100 vis., 2 color, 20-25 cold test	.06¼	.06½	.06¼	.06½	.06¼	.06½
100 vis., 3 color, 20-25 cold test	.06	.06¼	.06	.06¼	.06	.06¼
150 vis., 3 color, 20-25 cold test	.08¼	.08½	.08¼	.08½	.08¼	.08½
150 vis., 4 color, 20-25 cold test	.08	.08¼	.08	.08¼	.08	.08¼
180 vis., 3 color, 23-28 cold test	.09¾	.10	.09¾	.10	.09¾	.10
180 vis., 4 color, 23-28 cold test	.09½	.09¾	.09½	.09¾	.09½	.09¾
180 vis., 5 color, 23-28 cold test	.09¼	.09½	.09¼	.09½	.09¼	.09½
200 vis., 3 color, 23-28 cold test	.10	.10½	.10	.10½	.10	.10½
200 vis., 4 color, 23-28 cold test	.10⅛	.10⅝	.10⅛	.10⅝	.10⅛	.10⅝
200 vis., 5 color, 23-28 co'd test	.10¼	.10¾	.10¼	.10½	.10¼	.10½
240 vis., 3 color, 25-30 cold test	.13¾	.14	.13¾	.14	.13¾	.14
240 vis., 4 color, 25-30 cold test	.13¼	.13½	.13¼	.13½	.13¼	.13½
240 vis., 5 color, 25-30 cold test	.12¼	.12½	.12¼	.12½	.12¼	.12½
280 vis., 3 color, 25-30 cold test	.15½	.16	.15½	.16	.15½	.16
280 vis., 4 color, 25-30 cold test	.15	.15½	.15	.15½	.15	.15½
280 vis., 5 color, 25-30 cold test	.14	.14½	.14	.14½	.14	.14½
Cylinder Stocks:						
600, steam refined, light green	.07	.09	.07	.09	.07	.09
600, steam refined, dark green	.05	.06	.05	.06	.05	.06
190-200 vis. @ 210 Bright Stock	.31	.33	.31	.33	.31	.33
150-160 vis. @ 210 Bright Stock	.25	.26	.25	.26	.25	.26
Waxes:						
124-126 White Crude Scale Wax	.02⅝	.02¾	.02⅝	.02¾	.02¾	
PENNSYLVANIA—						
34 Neutral	.07½	.08	.07½	.08	.07½	.08
34 Sundebloom	.08¾	.09	.08¾	.09	.08¾	.09
36 Miners' Neutral	.07¾	.08	.07¾	.08	.07½	.07¾
150, 3 color	.27¼	.27¾	.27¼	.27¾	.27¼	.27¾
180, 3 color	.31	.31½	.31	.31½	.31	.31½
200, 3 color	.32½	.33	.32½	.33	.33¼	.33½
220, 3 color	.36	.36½	.36	.36½	.36	.36½
600, steam refined	.10¼	.10½	.10¼	.10½	.10¼	.10¾
635, steam refined	.11	.11½	.11	.11½	.11	.11½
650, steam refined	.12	.12½	.12	.12½	.12½	.13
600, Pennsylvania flash	.17	.17½	.17	.17½	.17	.17½
*550, E filtered	.15¾	.16	.17¼	.18	.17¼	.18
*600, E filtered	.17	.17½	.18½	.19	.18¼	.19
600, E filtered	.16	.16½	.16½	.17	.16½	.17
600, D filtered	.25½	.26	.25½	.26	.25½	.26
550, E filtered	.17½	.18	.17½	.18	.17½	.18
550, D filtered	.21½	.22	.21½	.22	.21½	.22
Pennsylvania Bright Stock	.30½	.31½	.32½	.33½	.31½	.32½
†122-124 White Crude Scale Wax	.03	.03⅛	.03	.03¼	.03⅛	.03⅜
†124-126 White Crude Scale Wax	.03⅛	.03¼	.03⅛	.03¼	.03⅛	.03⅜

*At Warren, Pa. †At New York City.

GULF COAST (South Texas)—						
No. 2 color, 100 vis., pale oil	.07	.07½	.07	.07½	.07	.07½
No. 3 color, 200 vis., pale oil	.09½	.10	.09½	.10	.09½	.10
No. 3 color, 300 vis., pale oil	.10½	.11½	.10½	.11½	.10½	.11½
No. 3½ color. 500 vis., pale oil	.12½	.13	.12½	.13	.12½	.13
No. 4 color, 750 vis., pale oil	.15½	.16	.15½	.16	.15½	.16
No. 5 to 6 color, 200 vis., red oil	.08	.08½	.08	.08½	.08	.08½
No. 5 to 6 color, 300 vis., red oil	.09½	.10	.09½	.10	.09½	.10
No. 5 to 6 color, 500 vis., red oil	.10½	.11	.10½	.11	.10½	.11
No. 5 to 6 color, 750 vis., red oil	.13½	.14	.13½	.14	.13½	.14
No. 2 color, 200 vis., pale filtered	.12¾	.14	.12¾	.14	.12¾	.14
No. 2 color, 300 vis., pale filtered	.14	.14½	.14	.14½	.14	.14½
No. 2½ color, 500 vis., pale filtered	.15½	.16½	.15½	.16½	.15½	.16½
No. 2½ color, 750 vis., pale filtered	.20	.20½	.20	.20½	.20	.20½
CALIFORNIA—						
130 vis., 2½-3 color	.09	.10	.09	.10	.09	.10

REFINERY AND CRUDE PRICES

Quotations on Principal Refined Products and Crude Petroleum Markets in All the American Oil Fields

200 vis., 2½-3 color	.10	.10½	.10	.10½	.10	.10½
300 vis., 3 -3½ color	.10½	.11	.10½	.11	.10½	.11
350 vis., 3½-4 color	.11	.12	.11	.12	.11	.12
400 vis., 3½-4 color	.13	.14	.13	.14	.13	.14
Red Neutral:						
200 vis., 4½-5 color	.08½	.09	.08½	.09	.08½	.09
300 vis., 5 -6 color	.09	.09½	.09	.09½	.09	.09½
400 vis., 5 -6 color	.11	.11½	.11	.11½	.11	.11½
500 vis., 4½-5 color	.11¼	.12	.11¼	.12	.11¼	.12
500 vis., 5 -6½ color	.11	.11½	.11	.11½	.11	.11½
600 vis., 6 plus color	.12	.12½	.12	.12½	.12	.12½

Note: Bright stocks are not manufactured commercially on the Pacific Coast.

NEW YORK (BAYONNE) REFINERY PRICES

	Nov. 8		Nov. 1		Oct. 25	
Gasoline, U. S. Motor, 58-60 437	.08	.08¼	.08	.08¼	.08¼	
Kerosene, water white, 41-43	.07½		.07½		.07½	
*Fuel Oil, bunker "C," 14-16, per bbl.	1.45		1.45		1.45	
*Fuel Oil, Diesel, 28-30, per bbl.	2.10		2.10		2.10	
Gas Oil, 28 plus	.05½		.05½		.05½	
25 pale Paraffin Oil	.12		.12		.12	
28 pale Paraffin Oil	.07¼		.07¼		.07¼	
285 red Paraffin Oil	.11½		.11½		.11½	
250 red Paraffin Oil	.10½		.10½		.10½	
225 red Paraffin Oil	.10		.10		.10	
200 red Paraffin Oil	.09½		.09½		.09½	
Refined Wax:						
120-122 a.m.p., per lb.	.04		.04		.04	
125-127 a.m.p., per lb.	.04¼		.04¼		.04¼	
130-132 a.m.p., per lb.	.05		.05		.05	
135-137 a.m.p., per lb.	.05¾		.05¾		.05¾	
Petrolatum, in bbls., carload lots, per lb.:						
Dark green	.01⅞		.01⅞		.01⅞	
Amber	.03⅜		.03⅜		.03⅜	
Extra amber	.03¾		.03¾		.03¾	
Cream	.06		.06		.06	
Lily white	.07½		.07½		.07½	
Snow white	.08½		.08½		.08½	

*Lighterage 6.5c a barrel extra.

NEW YORK (BAYONNE) EXPORT PRICES

	Nov. 8	Nov. 1	Oct. 25
Gasoline, U. S. Motor, 58-60 437, in cases	.2390	.2390	.2390
Kerosene, standard white, in cases	.1715	.1715	.1715
Kerosene, water white, in cases	.1815	.1815	.1815
600 steam refined cylinder stock, in bbls.	.17	.17	.17
635 steam refined	.19	.19	.19
650 steam refined	.20	.20	.20
600 Pennsylvania flash	.23	.23	.23
630 Pennsylvania flash	.35	.35	.35
600 Warren E	.25	.25	.25
600 Oil City E	.24	.24	.24
Light 135 Bright Stock	.40	.40	.40
Dark 135 Bright Stock	.38	.38	.38

LOS ANGELES EXPORT PRICES

	Nov. 8		Nov. 1		Oct. 25	
Kerosene, water white	.04½	.04¾	.04¼	.04⅜	.04¼	.04⅜
U. S. Motor Gasoline, 53-55 437 e.p.	.05¾	.06	.06	.06¼	.06	.06¼

CALIFORNIA CRUDE PRICES

Standard Oil Co.-Union Oil Co. (Effective April 1, 1927)*

Gravity—	Fullerton, Seal Beach, Long Beach, Huntington Beach, Richfield, Rosecrans-Dom'guez, Torrance-Inglewood 1	Whittier, La Habra, Montebello 2	Kern River, Newhall-McKittrick, Midway-Sunset, Elk Hills, Lost Hills, Belridge, Buena Vista Hills, Coyote 3	4	Santa Fe Springs 5	Codlinga 6	7	Wheeler Ridge 8	Santa Maria, Ventura, Orcutt, Salt Lake 9
14°	.85	.85	.75	.85	....	.75	.75	.75	.85
15°	.85	.85	.75	.85	....	.75	.75	.75	.85
16°	.85	.85	.75	.85	....	.75	.75	.75	.85
17°	.85	.85	.75	.85	....	.75	.75	.75	.85
18°	.85	.85	.75	.85	....	.75	.75	.75	.85
19°	.85	.85	.75	.85	....	.75	.75	.75	.85
20°	.85	.85	.77	.85	....	.76	.76	.76	.85
21°	.86	.85	.79	.86	.85	.77	.77	.77	.85
22°	.87	.85	.81	.87	.85	.78	.78	.78	.85
23°	.88	.85	.83	.88	.85	.79	.79	.79	.85
24°	.89	.85	.85	.89	.85	.80	.80	.80	.85
25°	.90	.86	.87	.90	.86	.81	.81	.81	.86
26°	.92	.87	.89	.91	.87	.83	.82	.82	.87
27°	.94	.88	.91	.92	.88	.85	.83	.83	.88
28°	.96	.89	.93	.93	.89	.87	....	....	.89
29°	.98	.90	.96	.94	.91	.89	....	....	.91
30°	1.00	.91	.99	.95	.93	.91	....	....	.93
31°	1.02	....	1.02	....	.95	.93	....	....	.95
32°	1.06	....	1.05	....	.97	.95	....	....	.97
33°	1.09	....	1.08	....	.99	.97	....	....	.99
34°	1.12	....	1.11	....	1.01	.99	....	....	1.01
35°	1.15	....	....	....	1.03	1.01	....	....	1.03
36°	1.18	....	....	....	1.06	....	....	....	1.06
37°	1.21	....	....	....	1.09	....	....	....	1.09
38°	1.24	....	....	....	1.12	....	....	....	1.12
39°	1.27	....	....	....	1.15	....	....	....	1.15
40°	1.30	....	....	....	....	....	....	....	....
41°	1.33	....	....	....	....	....	....	....	....
42°	1.36	....	....	....	....	....	....	....	....

*Column 1—Long Beach, Seal Beach and Huntington Beach crudes, 14 to 32 degrees, inclusive; Richfield and Fullerton, 14 to 30 degrees; Torrance and Inglewood, 14 to 28 degrees; Dominguez, 24 to 42 degrees. Rosecrans crude ranges from 14 to 42 degrees, but only Union Oil Co. posts below 24 degrees.

Column 2—Whittier crude, 14 to 22 degrees; Montebello, 14 to 30 degrees.

Column 3—Kern River, Newhall and McKittrick, 14 to 19 degrees; Midway-Sunset, Buena Vista and Elk Hills, 14 to 33 degrees; Lost Hills and Belridge, 14 to 34 degrees.

Column 8—Salt Lake, 14 to 19 degrees, inclusive; Santa Maria, 14 to 30 degrees, Ventura and Orcutt, 14 to 39 degrees. Posted only by Union Oil Co.

CRUDE OIL GRAVITY PRICE TABLE

Gravity—	Okla., Kans., N. C. Tex., La.-Ark. 1	Smackover, Ark. 2	Stephens, Ark. 3	Gray County (Texas Panhandle) 4	Crane, Upton, Pecos, Crockett Counties (West Texas) 5	Salt Creek, Wyo. 6	Grade B & Light Crude (G. Coast) 7	Somerset (South Central Texas) 8
Below 24	..	.90	....	....	....	....	....	....
24 and above	....	1.15	....	....	....	....	....	....
Below 25	....	....	....	....	....	....	1.15	....
25 to 25.9	....	....	....	....	....	....	1.17	....
Below 26	....	....	....	....	.60	....	....	....
26 to 26.9	....	....	....	....	.60	....	1.19	....
27 to 27.9	....	....	....	....	.60	....	1.21	....
Below 28	(*)	....	1.00	....	....	....	....	....
28 to 28.9	1.12	....	1.02	.80	.60	....	1.23	....
29 to 29.9	1.14	....	1.04	.82	.60	1.14	1.25	....
30 to 30.9	1.16	....	1.06	.84	.60	1.16	1.27	....
31 to 31.9	1.18	....	1.08	.86	.60	1.18	1.29	....
32 to 32.9	1.20	....	1.10	.88	.60	1.20	1.31	1.05
33 to 33.9	1.22	....	....	.90	.60	1.22	1.33	1.07
34 to 34.9	1.24	....	....	.92	.60	1.24	1.35	1.09
35 to 35.9	1.26	....	....	.94	.60	1.26	1.37	1.11
36 to 36.9	1.28	....	....	.96	.60	1.28	....	1.13
37 to 37.9	1.30	....	....	.98	....	1.30	....	1.15
38 to 38.9	1.32	....	....	1.00	....	....	....	1.17
39 to 39.9	1.34	....	....	1.02	....	....	....	....
40 to 40.9	1.36	....	....	1.04	....	....	....	....
41 to 41.9	1.38	....	....	1.06	....	....	....	....
42 to 42.9	1.40	....	....	1.08	....	....	....	....
43 to 43.9	1.42	....	....	1.10	....	....	....	....
44 to 44.9	1.44	....	....	1.12	....	....	....	....
45 to 45.9	1.46	....	....	....	....	....	....	....
46 to 46.9	1.48	....	....	....	....	....	....	....
47 to 47.9	1.50	....	....	....	....	....	....	....
48 to 48.9	1.52	....	....	....	....	....	....	....
49 to 49.9	1.54	....	....	....	....	....	....	....
50 to 50.9	1.56	....	....	....	....	....	....	....
51 to 51.9	1.58	....	....	....	....	....	....	....
52 and above	1.60	....	....	....	....	....	....	....

Column 1—Magnolia Petroleum Co. posted new schedule September 14, making price below 30 gravity $1.05 per barrel, with 2 cents increase per degree higher in gravity, taking 30-30.9 gravity at $1.16 as basis, with a top price of $1.60 for 52 and above.

Oklahoma: Prairie Oil & Gas Co., Sinclair Oil & Gas Co., Gypsy Oil Co., March 12; Carter Oil Co., The Texas Company, March 14.

North Central Texas—[Including Ranger, Mexia, Powell, Richland, Wortham, Lytton Springs (Southwest Texas), Iatan and Panola (Magnolia only), Currie, Nocona, Moran and Corsicana light]: Texas, Prairie, Sinclair and Gulf, March 12; The Texas Company, Humble Oil & Refining Co., March 14.

Kansas—Prairie, Sinclair, March 12; Carter, Texas, March 14.

Arkansas and North Louisiana—[Caddo, Bull Bayou, Crichton, De Soto, Haynesville, Homer and El Dorado only]: Standard Oil Co. of Louisiana, March 14; The Texas Company, March 14; Magnolia Petroleum Co., Pine Island, Haynesville and Bull Bayou, El Dorado, Gulf Pipe Line Co., March 14.

Column 2—On September 17, Louisiana Oil & Refining Co. On September 20, Standard Oil Co. of Louisiana, Magnolia Petroleum Co., Gulf Refining Co., and Atlantic Producing Co. September 23, The Texas Company.

Column 3—Atlantic Oil Producing Co., March 14.

Column 4—Humble Oil & Refining Co. and Gulf Pipe Line Co., March 14. On August 23 Magnolia Petroleum Co. posted flat 75 cents.

Column 5—Humble Oil & Refining Co., August 23; Kay County Gas Co., Magnolia Petroleum Co., and Gulf Pipe Line Co., August 24.

Column 6—Midwest Refining Co., March 12. All crude over 37 gravity, $1.30 per barrel.

Column 7—Humble Oil & Refining Co. and other major buyers (schedule ends "35 and above"), March 14, with exception of Magnolia Petroleum Co., which stops at 31 degrees gravity. Sun Pipe Line Co. posts 2 cents differential for each degree above 35 gravity and $1.47 for 40 gravity and above.

Column 8—Grayburg Pipe Line Co. and Pioneer Oil & Refining Co., April 7.

*Prices for crude below 28 gravity; Oklahoma, Kansas and Texas, Magnolia Petroleum Co., $1.10, March 12; Arkansas, North Louisiana, March 14. Other companies, 2 cents less for each degree, with exception of Humble Oil & Refining Co., which pays $1.12 for crude below 28 degrees gravity.

CRUDE OIL PRICES

OKLAHOMA, KANSAS, NORTH AND EAST CENTRAL TEXAS

*Corsicana heavy (March 14, 1927)....$1.00
Other fields.....See gravity table

*Posted by Magnolia Petroleum Co.

TEXAS PANHANDLE

*Carson County .....$ .75
*Hutchinson County 75
*Wheeler County 75
Gray County.....See gravity table

*Humble Oil & Refining Co.
Magnolia Petroleum Co., Gulf Pipe Line Co., and Kay County Gas Co., August 23.

WEST TEXAS

*Iatan.....Same as North Texas
Crane-Upton-Crockett.....See gravity table

*Includes Howard County and Westbrook Fields. Kay County Gas Co. pays $1.05 for Howard County crude, effective May 21.

ARKANSAS-NORTH LOUISIANA

Cotton Valley (March 17).....$1.00
Bellevue (Feb. 24, 1927).....1.25
Urania (Sept. 15, 1927)......90
East El Dorado (Sept. 20).....90
Other fields.....See gravity table

Note—Cotton Valley and Bellevue, Standard Oil Co. of Louisiana, Gulf Refining Co. and Magnolia Petroleum Co.; Urania, Louisiana Oil Refining Corp.; East El Dorado, Magnolia Petroleum Co., Gulf Refining Co.

GULF COAST

(Goose Creek, Hull, Liberty, West Columbia, Orange, Boling, Sour Lake, Humble, High Island, Pierce Junction and Spindletop.)

‡Grade A (March 14).....$1.20
Grade B.....See gravity table
*Jennings, La. (March 14).....$1.05
†Saratoga, Batson, Dayton (March 14, 1927) 1.20
§Markham (March 14)..... 1.00

*Gulf Pipe Line Co. †Sun Pipe Line Co. ‡Humble Oil & Refining Co. and other major buyers. §The Texas Company.

SOUTH CENTRAL AND SOUTHWESTERN TEXAS

*Luling (May 5).....$1.00
†Mirando (March 14)..... 1.00
Rockdale-Minerva (April 15):
38-38.9 gravity 1.27
39-39.9 gravity 1.29
40 and above 1.31
*Thrall .....
Callihan (May 15)..... 1.75
Lytton Springs (Lockhart See gravity table
Somerset ..... See gravity table

*Posted by Magnolia Petroleum Co. Thrall prices same as north central Texas less 19¼ cents per cwt. freight.

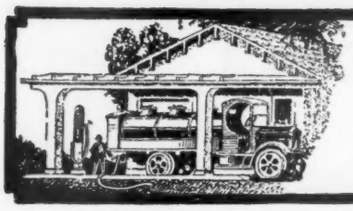
†Magnolia Petroleum Co., Humble Oil & Refining Co., Crown Central Pipe Line Co.

ROCKY MOUNTAIN STATES

Ohio Oil Co.-Midwest Refining Co.
Effective March 14)

Rock Creek, Wyo. (March 12).....$1.25
Salt Creek ..... See gravity table
Big Muddy (March 12).....$1.25
Mule Creek (May 1)..... 1.10
Grass Creek, heavy ..... .90
Grass Creek, light 1.33
Elk Basin (March 12)..... 1.33
Lance Creek (March 12)..... 1.33
Poison Spider 1.00
Notches ..... .85
Rex Lake (February 22)..... 1.10
Osage 1.33
Lost Soldier (contract)..... .95
Greybull-Torchlight 1.33
Hamilton Dome ..... .85
Cat Creek (Mont.) 1.33
Sunburst (Mont.) 1.35

(Continued on Page 142)



TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns Nov. 8.

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

STANDARD OIL CO. (INDIANA)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'd's tax of	tank wagon
Chicago dist. ..	16.0	18.0	2.0	12.0
Decatur, Ill. ..	10.5	12.5	2.0	12.1
E. St. Louis ...	15.1	17.35	2.0	11.2
Joliet	16.4	18.4	2.0	12.3
Peoria	12.2	12.2	2.0	12.1
Quincy	16.2	18.2	2.0	11.9
Davenport, Ia..	15.5	17.5	3.0	12.3
Des Moines ...	13.9	15.9	3.0	12.3
Keokuk	17.5	19.5	3.0	12.3
Sioux City	17.1	19.1	3.0	11.9
Duluth, Minn...	15.5	17.5	2.0	12.9
Minneapolis ...	14.0	14.0	2.0	12.9
Mankato	17.1	19.1	2.0	12.7
LaCross, Wis. .	17.2	19.2	2.0	13.0
Milwaukee	16.1	18.1	2.0	11.9
Madison	16.3	18.3	2.0	12.1
Detroit, Mich...	15.8	17.8	3.0	13.7
Grand Rapids..	14.0	16.0	3.0	13.6
Saginaw	17.9	19.9	3.0	13.8
Evansville, Ind.	17.0	19.0	3.0	13.0
Ft. Wayne	14.0	14.0	3.0	13.4
Indianapolis ...	14.2	15.2	3.0	12.2
South Bend ...	15.0	15.0	3.0	13.4
Fargo, N. D. ..	15.0	17.0	2.0	14.9
Huron, S. D....	19.5	21.5	4.0	13.9
Sioux Falls ...	15.0	17.0	4.0	13.4
*K. C., Mo. ...	14.9	16.9	3.0	10.6
*Springfield ...	16.8	18.8	3.0	11.5
*St. Louis	15.6	17.9	2.5	11.3
*St. Joseph ...	14.5	16.5	3.0	11.2
Wichita, Kans.	14.8	16.8	2.0	10.8
Bartlesville, Ok.	15.8	17.8	3.0	10.8

NAPHTHAS

	Tank wagon	Tank car
Oleum spirits	16.0	10.75
V. M. & P. naphtha	18.0	12.75
Cleaner's naphtha	18.0	13.75
Stanisol	19.0	14.75

Tank wagon prices f.o.b. Chicago; tank car prices f.o.b. Whiting.

STANDOLIND FURNACE OIL

Less than 100 gallons	9.0
100 to 799 gallons	8.0
800 or more gallons	7.5

Tank wagon prices of gasoline subject to discount of 1 cent a gallon on dumps of 50 gallons or more throughout territory except Chicago district where discount applies only to dumps of 100 gallons. Kerosene subject to 1 cent discount on dumps of 50 gallons or more.

Outside the Chicago district, the following quantity discoun. schedule is in effect on monthly tank wagon deliveries of gasoline; 6,000 gallons or more, 1½ cents; 10,000 gallons or more, 2 cents; 15,000 gallons or more, 3 cents. These discounts include the 1 cent allowed on dumps of 50 gallons or more at one delivery.

Within the Chicago district, the following quantity discount schedule is in effect on tank wagon deliveries of gasoline; 750 to 2,000 gallons, one-half cent; 2,000 to 3,000 gallons, three-fourths cent; 3,000 to 6,000 gallons, 1 cent; 6,000 to 10,000 gallons, 1½ cents; 10,000 to 15,000 gallons, 2 cents; 15,000 gallons or more, 3 cents. These discounts are in addition to the special discount of 1 cent on dumps of 100 gallons or more at one delivery.

If the quantity bought during the year is equal to or exceeds 12 times the agreed monthly quantity, the discount is paid or credited on the entire quantity at the close of the term less the monthly payments made during the year.

*State tax 2 cents; remainder city tax.

OHIO

Standard Oil Co. (Ohio)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'd's tax of	tank wagon
All Ohio points	17.0	19.0	3.0	14.5

SOUTHWESTERN DISTRICT

Magnolia Petroleum Co.*

	Gasoline			Kero.
	Tank wagon	Service station	Incl'd's tax of	tank wagon
Dallas, Tex. ...	14.0	17.0	3.0	11.0
Fort Worth ...	14.0	16.0	3.0	10.0
Houston	13.0	15.0	3.0	15.0
San Antonio ..	13.0	15.0	3.0	10.0
El Paso	14.0	15.0	3.0	16.0
Texarkana	15.0	18.0	3.0	12.0
Muskogee, Ok...	15.0	18.0	3.0	9.0
Okla. City.	13.0	14.0	3.0	9.0
Tulsa	15 0	15 0	3.0	9.0
Ft. Smith, Ark.	14.0	17.0	3.0	12.0
Little Rock ...	16.0	16.0	5.0	12.0

*The following is the schedule of discounts on quantity gasoline sales adopted by the Magnolia Petroleum Co. in Oklahoma: Over 750 gallons a month, one-half cent; over 2,000 gallons, three-quar.ers cent; over 3,000 gallons, 1 cent; over 4,500 gallons, 1¼ cents; over 6,000 gallons, 1½ cents; over 8,000 gallons, 1¾ cents; over 10,000 gallons, 2 cents. If the quantity bought during the year is 12 times the monthly agreed purchases, the discount will be paid or credited on the entire quantity for the year less any monthly purchases.

The schedule on service station deliveries is: Over 200 gallons a month, 1 cent; over 300 gallons a month, 1¼ cents; over 400 gallons, 1½ cents; over 500 gallons a month, 1¾ cents; over 600 gallons, 2 cents. The same rule applies for annual purchases in the tank wagon discounts.

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline			Kero
	Tank wagon	Service station	Incl'd's tax of	tank wagon
*N. Orleans, La.	15 5	15 5	3 0	14 0
Baton Rouge ..	14.0	17.0	2.0	12.5
Alexandria	15.0	18.0	2.0	14.0
LaFayette	15.0	18.0	2.0	13.5
Lake Charles .	16.5	18.5	2.0	14.0
Shreveport	15.5	18.5	2.0	13.0
Kn'xville, T'nn.	19.5	22.5	3.0	15.0
Memphis	16.5	16.5	3.0	14.0
Chattanooga ..	19.5	22.5	3.0	15.0
Nashville	18.0	21.0	3.0	15.0
Bristol	19.0	23.0	3.0	14.0
Lit. Rock, Ark.	16.0	16.0	5.0	12.0

*Tax of 3 cents includes city tax of 1 cent.
*Louisiana kerosene prices include 1-cent state tax and 1-cent parish tax.

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'd's tax of	tank wagon
Atlanta, Ga. ...	16.0	18.0	4.0	15.5
Augusta	19.0	22.0	4.0	16.5
Macon	19.0	22.0	4.0	16.5
Savannah	17 0	19 0	4 0	14 5
Birm'h'm, Ala..	18.0	21.0	4.0	15.5
Mobile	17.0	20.0	4.0	15.0
Montgomery ...	19.0	22.0	5.0	16.5
Clarks'le, Miss..	17.0	20.0	4.0	12.5
Jackson	17.0	20.0	4.0	13.5
Natchez	16.5	19.5	4.0	14.0
Gulfport	18.5	21.5	6.0	14.0
Vicksburg	16.5	19.5	4.0	14.0
Jack'ville, Fla..	18.0	21.0	5.0	14.0
Miami	20.0	23.0	5.0	15.5
Pensacola	19 0	22 0	5 0	14 0
Tampa	18 0	21.0	5.0	14 0
Lexington, Ky..	18.0	21.0	5.0	15.5
Covington, Ky..	19.0	22.0	5.0	15.5
Louisville	19.0	22.0	5.0	15.0

In addition to the state tax of 2 cents on gasoline, Montgomery has city tax of 1 cent on gasoline. Kerosene prices in Georgia includes 1 cent tax. In Florida, an inspection fee of 0.125 cent; in Alabama, an inspection fee of one-half cent on kerosene only. Pensacola tax includes 1 cent city levy. Gulfport tax includes privilege tax of 2 cents in addition to state tax.

PENNSYLVANIA-DELAWARE AND PART NEW ENGLAND

Atlantic Refining Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'd's tax of	tank wagon
Pittsburgh, Pa..	16.0	*22.0	...	14.0
Philadelphia ..	14.0	17.0	...	14.0
Scranton	16.0	*22.0	...	14.0
Allentown	16.0	*22.0	...	14.0
Altoona	16.0	*22.0	...	14.0
Erie	14.0	*18.0	...	14.0
Dover, Del. ...	19.0	22.0	3.0	14.0
Wilmington ...	19.0	22.0	3.0	14.0
Spring'd, Mass.	17.0	17.0	...	15.0
Worchester ...	17.0	17.0	...	15.0
Boston	17.0	17.0	...	15.0
Providence, R.I.	19.0	19.0	2.0	15.0
Hartford, Conn.	21.0	22.0	3.0	15.0
New Haven ...	21.0	22.0	3.0	15.0

*Includes tax of 3.0 cents. Pennsylvania tax is collected by the dealer and paid by him direct to the state.

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'd's tax of	tank wagon
Albany, N. Y. .	17.0	19.0	...	15.0
*New York ...	17.0	19.0	...	15.0
Buffalo	17.0	19.0	...	14.0
Rochester	13.0	16.0	...	14.0
Syracuse	17.0	19.0	...	15.0
Boston, Mass. .	17.0	19.0	...	15.0
Augusta, Me. ..	20.0	22.0	3.0	15.0
M'nch't'r, N.H..	18.0	22.0	3.0	15.0
Burlington, Vt..	20.0	22.0	3.0	15.0

*Price in steel barrels.

PACIFIC COAST DISTRICT

Standard Oil Co. (California)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'd's tax of	tank wagon
San Francisco .	17.0	21.0	3.0	15.5
Pueblo	18.0	18.0	3.0	15.5
Los Angeles ...	16.5	20.5	3.0	15.5
Reno, Nav. ...	22.0	26.0	4.0	19.0
Portland, Ore. .	17.5	21.5	3.0	16.5
Seattle, Wash..	16.5	20.5	3.0	16.5
Tacoma	16.5	20.5	3.0	16.5
Spokane	20.5	24.5	3.0	20.5
Phoenix, Ariz..	22.0	26.0	3.0	20.5

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'd's tax of	tank wagon
Atlantic City ..	18.0	20.0	2.0	14.0
Newark, N. J. .	18.0	20.0	2.0	14.0
Annapolis, Md..	20.0	23.0	4.0	12.0
Baltimore	20.0	23.0	4.0	10.0
Cumberland ...	20.0	23.0	4.0	14.0
Washing.on ...	18.0	21.0	2.0	12.0
Danville, Va. ...	20.5	....	4.5	14.0
Norfolk	20.5	23.5	4.5	12.0
Petersburg	20.5	23.5	4.5	14.0
Roanoke	20.5	23.5	4.5	14.0
Richmond	18.5	21.5	4.5	14.0
Ch'rist'n, W.Va.	20.0	23.0	4.0	14.0
Keyser	20.0	....	4.0	14.0
Parkersburg ...	17.0	20.0	4.0	14.0
Wheeling	20.0	23.0	4.0	14.0
Charlotte, N. C.	20.0	23.0	4.0	14.0
Hickory	20.0	23.0	4.0	14.0
Mt. Airy	20.0	23.0	4.0	14.0
Salisbury	20.0	23.0	4.0	14.0
Charl'stn, S. C.	20.0	23.0	5.0	14.0
Columbia	20.0	20.0	5.0	14.0

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'd's tax of	tank wagon
Omaha	14.25	16.25	2.0	12.25
McCook	14.75	14.75	2.0	11.50
Norfolk	16.75	18.75	2.0	12.75
N. Platte	17.75	19.75	2.0	13.50
Scottsbluff ...	17.25	19.25	2.0	13.00

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'd's tax of	tank wagon
Denver, Colo...	16.0	16.0	3.0	12.5
Pueblo	15.0	15.0	3.0	14.5
Grand Jnctn. ..	20.5	22.5	3.0	18.0
Casper, Wyo. ..	17.0	19.0	3.0	13.0
Cheyenne	18.0	20.0	3.0	14.5
Butte, Mont. ..	22.0	22.0	3.0	19.0
Helena	22.5	24.5	3.0	19.0
Sal. Lake, Utah	21.0	23.0	3.5	17.0
Boise, Idaho ..	23.5	25.5	4.0	19.0
Twin Falls	23.5	25.5	4.0	19.0
Albu'que, N. M.	21.0	24.0	5.0	17.0

PRAIRIE'S PRODUCTION 80,000 BBLS. PER DAY

A well known eastern financial information bureau in a recent brief survey of the Prairie Oil & Gas Co. speaks of it as the largest purchaser and marketer of Mid-Continent crude and adds that it produces about 25,000 bbls. of oil per day. As a matter of fact the Prairie Oil & Gas Co's production in September in Kansas, Oklahoma and Texas was rated around 80,000 bbls. per day and in addition the Prairie of Wyoming owns practically all of the Lost Soldier Field and valuable production in Salt Creek and owns a controlling interest in the Producers & Refiners Corp.

The Prairie has been fortunate in its Seminole production. The company bought the leases at a low price long before there was any suspicion of production in the area and the properties have been large producers of oil. The company has crude reserves in storage in Kansas, Oklahoma and Texas of about 50,000,000 bbls.

PENNSYLVANIA MARKETS

OIL CITY, Pa., Nov. 5.—Gasoline and naphtha were a trifle softer in the Pennsylvania refinery district during the week but the change was not of much account. Kerosene was a l'ttle weaker but is holding up well for this time of the year. Fuel oil is in fair demand without much change from the previous week. Neutrals continued to be strong and in good demand. Wax did not seem to be moving quite so well. Bright stocks are very weak and the demand is light. Cylinder stocks were unchanged during the week.

PRAIRIE P. L. STATEMENTS

Prairie Pipe Line shipments in October showed a decline as compared with the September volume of business. October shipments totaled 5,156,292 bbls., a daily average of 166,332 bbls. The September daily average was 177,373 bbls. indicating a falling off of 11,041 bbls. a day. Shipments in August averaged 186,672 bbls. per day.

GASOLINE EXPENSE SHOWN TO BE SMALL

Approximately 3½ cents from each retail dollar goes to buy gasoline, according to a report of the Chamber of Commerce of the United States, based on statistics gathered in Syracuse, N. Y. Other expenditures made from the dollar included 10¼ cents for automobile sales and 3 cents for accessories. In comparison, the gasoline expense is small. In all, the automobile takes 17 cents while 27 cents goes for food, 22 cents for clothing, and 7 cents for house furnishings. Similar data has been taken at other cities and the program is intended to finally cover all of the more important places.

So far, Baltimore, Denver and Syracuse have been the only cities covered by this analysis of sales but it is evident that less of the retail dollar goes for automobiles as the population of the cities increase. This may be explained by the greater number of people per car in these congested districts. Baltimore spends but 9 cents for automobiles and supplies while Denver spends 16 cents.

DEATH OF J. P. O'MEARA

Jeremiah P. O'Meara, 60, prominent in petroleum law for over 20 years, died on Monday, November 7, at his home in Tulsa, Okla.

Mr. O'Meara was actively identified with the oil industry in Oklahoma, starting in the old Bartlesville Field during the early days of its development. In Bartlesville he was a member of the law firm of Veasey, O'Meara and Owens. Messrs. Veasey and Owens are now members of the Carter Oil Co.'s legal department in Tulsa.

CRUDE OIL PRICES

(Continued from Page 141)

Artesia (March 12)	1.00
Hogback (N. Mex.) (March 14)	1.85

Note: Salt Creek, Osage, Cat Creek, Greybull and Hogback posted by Midwest Refining Co., and the remainder by the Ohio Oil Co. Both companies post Grass Creek light and Elk Basin.

EASTERN STATES
Joseph Seep Purchasing Agency
(Effective August 1)

Penna Grade Oil in New York Transit Line (New York)	$2.65
Bradford District Oil in National Transit Lines (Pennsylvania)	2.65
Penna Grade Oil in National Transit Lines (Pennsylvania)	2.55
Penna Crude Oil in Southwest Pennsylvania Lines (West Virginia)	2.55
Penna Grade Oil in Eureka Pipe Line lines (Pennsylvania)	2.50
Penna Grade Oil in Buckeye Pipe Line lines (Ohio) (August 23)	2.25
Cabell Grade Oil in Eureka Pipe Line lines (West Virginia) (March 16) ...	1.40
Corning 35-cent grade oil in Buckeye Pipe Line Co.'s line (March 17)	1.35
Corning 25-cent grade oil in Buckeye Pipe Line Co.'s lines (March 17)	1.40
Somerset Oil in Cumberland Pipe Line lines (Kentucky) (March 16)	1.50
Ragland Grade Oil in Cumberland Pipe Line lines (Kentucky)	.95
Keister (Pennsylvania)	1.10

MIDDLE WESTERN STATES
Ohio Oil Co.
(Effective March 14)

Lima	$1.71
Wooster	1.57
**Saginaw, Mich., Saginaw Sand (May 27)	2.05
Illinois	1.60
Indiana	1.48
Prince.on	1.60
Plymou.h	1.33
Waterloo (Nov. 17, 1926)	1.35
*Western Kentucky	1.33
**Saginaw, Mich., Berea Sand (May 27)	1.95
†Cumberland, Barren, Clinton and Monroe Counties, Kentucky (March 16)..	1.50
‡Oil in lines of Stoll Oil Refining Co. in Oil City, Ky. (March 16, 1927)	1.50
†Clay County, Tennessee (Nov. 18)	2.35
§Oil Springs (Canada)	2.18
§Petrolia (Canada)	2.13

*Posted by Ohio Oil Co.
†Posted by Paragon Development Co.
‡Posted by Stoll Oil Refining Co.
§Posted by Imperial Oil Co., Ltd.
**Posted by Sun Oil Co.

MEXICAN CRUDE

Note—Due to the fact that the exportation of Tuxpam light crude oil has become a negligible factor, prices will no longer be published.

*Panuco heavy (f.o.b. Mex. ports)	$1.10

*17.496 cents tax.

This SIGN will tell a motorist you have *two reasons* why he should drive into your station.

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2nd *You have a sound, common-sense method of selling it.*

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Seals Power at every Degree of Wear

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Oil Securities Display Good Strength

Sharp Advances in the General List of Petroleum Issues. Movement Halted by Later Discoveries at Seminole

A week encompassing a succession of spurts and breaks in the general market was accompanied by sharp advances in the general list of oils. The feature of the week was the upward trend of Independent Oil & Gas following the statement that this concern had arranged with a syndicate of western financiers to handle the issue of stock which was announced. Independent advanced from 22 to 26⅜, displaying plenty of strength when large bunches of stock were offered and absorbed.

The oils as a group displayed good strength, and the upward trend which was well under way was brought to a sharp halt by the finding of three new pools close to the Great Seminole area; pools which may have a very influential effect upon the situation early next year.

Short coverings had played a stellar role in sending the oils up at the start, but real buying strength was apparent this week.

New Oil Financing

The Independent Oil & Gas Co. is offering to stockholders of record November 9, rights to subscribe to 150,000 shares of new stock at $28 a share. Subscription rights expire November 29. The subscription privilege will give stockholders the right to subscribe to additional stock equal to 30 per cent of present holdings and increase the outstanding shares to 650,000. In March this year the company sold $6,500,000 12-year 6 per cent convertible debentures.

In a letter to stockholders, E. H. Moore, president of the Independent Oil & Gas Co., states that the highest production recently was 31,000 bbls. a day and during the past few months it was necessary to store considerable oil. Currently production is between 25,000 and 26,000 bbls. a day.

The stock issue will provide $4,200,000. At the end of September accounts receivable totaled $1,141,000 and oil in storage was valued by the company at more than $1,500,000.

The Empire Gas & Fuel Co. has offered through a banking syndicate $10,000,000 7 per cent cumulative preferred stock at par. The outstanding funded debt of the company as of August 31, 1927, consisted of $18,000,000 5 per cent serial gold notes, and capitalization consisted of $44,424,676 preferred, not including the present issue, and 750,000 shares of common stock of no par value. The subsidiaries have outstanding $55,000,000 of 5½ per cent bonds.

The proceeds from the sale of $10,000,000 7 per cent preferred stock will be used to reimburse the company in part for additions, betterments and improvements to the properties of the subsidiaries. Empire Gas & Fuel Co. is a subsidiary of the Cities Service Co.

Standard Oil of California

It is reported that the Standard Oil Co. of California is contemplating a new capital plan. One report is that the plan will take the form of a 10 per cent stock dividend, while another looks for the offering of additional stock to stockholders at $50 a share.

The company has 12,594,098 shares of $25 par value stock outstanding out of an authorized issue of 15,000,000 shares. The regular dividend, No. 7, of 62½ cents a share, has been declared, payable on December 15, 1927.

Atlantic Refining

The Atlantic Refining Co. and subsidiaries report for the quarter ended September 30, 1927, consolidated net profit of $1,333,000 after depreciation, depletion, taxes, intangible development costs, etc., equivalent after allowing for 7 per cent preferred dividend requirements to $1.96 a share (par $100) earned on 500,000 shares of common stock. This compares with $2,818,123 or $4.93 a share on the common in the third quarter of 1926.

For the first nine months of 1927, net loss amounted to $144,419 after the above charges, compared with net profit of $6,066,236 or $10.03 a share in the first nine months of the previous year.

Louisiana Oil

The Louisiana Oil Refining Corp. reports for nine months ended September 30, 1927, consolidated net profit of $245,984 after interest, depreciation, depletion, estimated Federal taxes, etc., equivalent after allowing for 6½ per cent preferred dividend requirements to 4 cents a share earned on 1,140,063 shares of no par common stock. For first nine months of 1926 company reported profit of $1,848,986 before Federal taxes.

The consolidated net loss for quarter ended September 30, 1927, was $15,578 after above charges, comparing with net loss of $33 332 in preceding quarter and profit of $615,630, or 48 cents a share, on common in third quarter of 1926.

The consolidated income account for nine months ended September 30, 1927, compares as follows:

	1927	1926
Oper. profit	$1,542,542	$3,253,382
Deductions	163,670	59,016
Interest	74,901	174,065
Depr., depl., etc.	1,261,382	1,171,315
Profit	$42,589	$1,848,986
Other income	*230,727	
Total income	$273,316	$1,848,986
Est. Fed. taxes	27,332	
Net profit	$245,984	†$1,848,986
Quarter Ended September 30		
Oper. profit	$487,032	$1,220,021
Deductions	70,688	1,392
Interest	21,984	45,207
Depr., depl., e.c.	411,901	428,075
Loss	$17,541	†$745,347
Other income	*231	
Loss	$17,310	†$745,347
Est. Fed. taxes	‡1,732	129,717
Net loss	$15,578	‖$615,630

*Profit from sale of investments. †Profit before Federal taxes. ‡Credit. §Net profit.

Amerada Petroleum Corp.

Report of Amerada Petroleum Corp. and subsidiaries for quarter ended September 30, 1927, shows net income of $763,273 after depreciation, depletion and Federal taxes, equivalent to 82 cents a share, earned on 922,075 outstanding shares of no par stock. This compares with $924,754 or $1.01 on 915,675 shares in June quarter and $1,494,941 or $1.83 a share on 814,800 shares outstanding in third quarter 1926.

Net income for first nine month of 1927 totaled $2,853,702 after above charges, equal to $3.09 a share on 922,075 shares comparing with $3,696,801 or $4.53 a share on 814,800 shares in first nine months of 1926.

Consolidated income account for quarter ended September 30, 1927, compares as follows:

	1927	1926
Gross income	$4,459,829	$4,298,483
Expenses, etc.	2,250,811	1,617,069
Operating income	$2,209,018	$2,681,414
Other income	127,299	62,366
Total income	$2,336,317	$2,743,782
Depr., depl., Fed. e.x...	1,573,044	1,248,841
Net income	$763,273	$1,494,941
Nine Months Ended September 30		
Gross income	$14,048,777	$10,593,291
Expenses, etc.	6,587,137	3,975,492
Operating income	$7,461,640	$6,617,799
Other income	374,494	182,914
Total income	$7,836,134	$6,800,713
Depr., depl., Fed. tax..	4,982,432	3,103,912
Net income	$2,853,702	$3,696,801

The Pipe Lines

The 34 principal pipe line companies in the United States had net income of $80,400,863 for the year ended December 31, 1926, according to statistics of the Interstate Commerce Commission.

These companies, which operated 72,845 miles of line, had operating revenues of $173,074,958 and operating expenses of $83,098,075. During the year, dividends totaling $50,928,550 were paid on capital stock aggregating $322,433,600.

Number of employes of the 34 companies is placed at 27 346 and payments for their services totaled $38,109,583.

According to statistics 835,582,970 bbls. of oil were transported through the lines.

Other financial and operating data give investment in pipe lines $539,409,607; other investments, $111,890,862; cash, $6,553,049; material and supplies, $14,187,705; total current assets, $92,670,345; unmatured funded debt, $19,995,000; total current liabilities, $21,872,377; accrued depreciation, $219,625,232; total, corporate surplus, $129,598,619; tax accruals, $13,453 822; and pipe line operating income, $76,523,058.

Prairie Pipe Line Co., operating 11,587 miles of line in Illinois, Indiana, Iowa, Kansas, Missouri, Oklahoma and Texas, was the largest concern reporting. In 1926 its operating revenues were $28,319,056 and its operating expenses, $12,418,987. Its net income for the year is reported as $14,446,788.

During 1926 the Prairie company paid its 2,885 employes $5,737,723 and transported 101,590,476 bbls. of oil. During the year it distributed $6,480,000 in dividends or at the rate of 8 per cent on its $81,000,000 of capital stock.

Buckeye Pipe Line is expected to benefit, from the standpoint of earnings, through its recent acquisition of the Pure Oil Co. pipe lines in Ohio. The purchase price was approximately $800,000. While no information is available on 1927 profits, it appears likely that expenditures for the lines have been provided from this year's earnings, after dividend payments.

Dividends in 1927 total $4 a share, or $800.000 on the 200.000 shares of outstanding $50 par stock. In 1926, $5 a share was paid.

Southern Pipe Line Co. declared a dividend of $2, payable December 1 to stock of record November 15.

Statement accompanying the dividend says: "Earnings thus far in 1927 have been in excess of what had been anticipated, due to the fact that a large quantity of Mid-Continent oil moved to the

NEW YORK STOCK EXCHANGE—LIST OF ACTIVE STOCKS

Stocks—	Par	Clos. Quot. Nov. 7	Clos. Quot. Oct. 31	1927 High	1927 Low	1926 High	1926 Low	1925 High	1925 Low
Amerada Corp.	..	29¾	29⅞	37¼	27½	32⅞	24¾	..	..
Atlantic Refining, com.	100	117	116	131¾	107	128¾	97	117½	95½
Barnsdall "A"	25	24⅜	22⅞	35½	20¾	32½	23½	33½	18¾
California Petroleum, com.	25	23¾	21¾	32¾	20	38⅛	30⅝	34⅜	23⅜
Houston Oil	100	156½	135⅛	175¾	60½	75	50¼	85	50
Independent Oil & Gas	..	26	24¼	32¾	17⅝	34	20¼	41¾	13½
Louisiana Oil	10	11	10¾	18¼	10¼	19¾	12	23¾	13¾
Maracaibo	..	12¾	13	22¾	12	27⅜	18¾	35½	20¾
Mariand	..	35½	33⅞	58¼	31	63⅜	42¼	60½	31¾
Mid-Continent Petroleum	..	29	26⅝	39¾	25½	41	25⅝	38	25⅝
National Supply	50	90	85⅝	95¾	76	84⅞	55½	71	54¾
Oil Well Supply	25	37	35	44⅝	31¼	36	20	38	23⅜
Pan American, B	50	49⅝	47⅞	66¾	45¼	72⅜	56⅛	83⅞	59⅛
Pan American, Western B	..	21	19⅛	37⅜	16⅜	46	34	94⅜	37⅛
Phillips Petroleum	..	42¼	41	60¼	36¼	54¾	42¼	47½	37½
Producers & Refiners	50	28⅝	25⅛	33⅞	16⅜	26	11	32¾	12⅛
Pure Oil, com.	..	26¼	25⅝	33½	25	31	25⅜	33⅜	22⅛
Royal Dutch, N .Y., sh.	13.40	45⅜	45¼	54½	44¼	57⅜	49⅜	57⅜	48¼
Shell Transport	10	43¼	41⅝	49	41½	48⅞	42	49	30⅜
Shell Union, com.	..	26¼	25¼	31¾	24⅝	30¾	24	28⅜	21⅝
Simms Petroleum	10	19¼	18½	22⅜	14¼	25⅝	16½	28½	18¾
Sinclair Consolidated	..	16⅛	15½	22⅜	15¼	24⅞	16⅜	24⅞	17
Skelly Oil	25	27	26½	37⅜	24⅛	37½	27	32½	21⅜
Standard of California	25	56⅜	54⅞	60¾	50⅜	63½	54	67¼	52½
Standard of New Jersey, com.	25	40	39	41⅝	35¼	46⅜	37½	47½	38⅜
Standard of New York	25	32	31	34¼	29⅜	47¼	30⅝	48⅝	40
Sun Oil Co.	..	33½	30⅞	34⅞	30	41⅝	30½	43⅞	38½
The Texas Company	25	51⅞	50	58	45	58	48	56	43⅜
Texas Pacific Coal & Oil	10	13⅝	13¼	18⅞	12	19½	12⅝	23¼	11
Tide Water Associated Oil	..	17	16⅝	19¼	15⅝	21	17	..	..
Transcontinental	..	8⅛	7⅝	9¾	3¾	5½	3	5⅝	3½
Union Oil of California	25	45	43½	56½	39⅝	59⅜	37¼	43⅝	38½
Union Tank, com.	100	107½	107¼	116½	94	120⅝	84¼	‡134	118
White Eagle Oil & Refining	..	22⅜	21⅝	27½	21⅜	29⅜	25¼	28⅜	25⅝
Standard Oils									
Anglo-American Oil	£1	18⅜	18½	21⅝	17⅛	19⅜	16½	26⅜	17½
Borne Scrymser	25	56	56¼	69	49½	75	65	‡240	205
Buckeye Pipe Line	50	56½	55⅛	58	45	59½	42	72	63½
Chesebrough Manufacturing Co.	25	116	118	126	76½	81¼	63	74	48¼
Continental	10	18½	18⅛	22⅝	16¼	25⅞	10¼	31½	21⅞
Cumberland Pipe Line	100	94	92	‡137	90	137	102	156	128
Eureka Pipe Line	100	62½	58	62½	47	43¾	43	96	61¼
Galena Signal, com.	100	6½	7	13½	7½	32½	9⅞	68½	23½
Humble Oil & Refining Co.	25	63⅝	62⅜	65¼	54	99⅝	52	99	40½
Illinois Pipe Line	100	176½	172	169	123¾	144	131	154½	124
Imperial Oil	..	61⅜	58⅞	64⅜	37⅜	39⅜	32½	39¼	27¼
Indiana Pipe Line	50	82⅜	77	82⅜	61	68	52¼	84	57½
International Petroleum Co.	10	33½	31⅞	34⅝	28¼	35¼	28⅜	25⅜	20½
National Transit Co.	12.50	20	19	20¼	13¼	30⅜	27¼	25½	16½
New York Transit	100	37	35	37	31¼	61½	27¼	70	50
Northern Pipe Line	100	83	84	91	70	80½	64	88	67½
Ohio Oil Co.	25	62½	59½	64¼	52	67⅜	55⅜	75¼	60
Penn-Mex Fuel	25	36⅞	31½	36⅞	12	24¼	15	44	19
Prairie Oil & Gas	25	49	49	55½	45⅝	60¼	49	65½	45⅞
Prairie Pipe Line	100	178	175	185	132	137½	122½	139⅜	105
Solar Refining Co.	100	180	177½	‡201½	178	212	184½	259	200
South Penn Oil	25	39½	37	41½	34½	50	30	‡197	139
Southwest Pa. Line	100	74	70	77	55½	56	47½	84	50
Southern Pipe Line	50	23	21½	‡27¼	18½	27	24	‡103	63
Standard of Indiana	25	75⅛	72⅝	75⅝	64⅝	70½	60½	70⅜	69¼
Standard of Kansas	25	16	15⅝	20⅞	15⅝	36½	16½	46	30
Standard of Kentucky	25	121½	119¼	123½	111½	134⅜	108	137	114⅝
Standard of Nebraska	25	43⅝	42½	49½	42	51¼	42	‡270	231
Standard of Ohio, com.	100	76	74½	81½	72	362	192½	369	338
Swan & Finch, com.	25	19½	20	21	14½	21	18	27	12
Vacuum Oil	25	132	130½	136½	95½	109⅜	94⅛	109½	80½
Miscellaneous									
Gulf Oil Corp. of Pa.	25	95½	93¼	96½	86¼	95	82½	98¼	63½

*Bid, no sales. ‡Old stock. †New stock.
Quotations furnished by W. J. Wollman & Co.

The Oil and Gas Journal's weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange was as follows:

Nov. 7	61.30	Oct. 3	60.97	Aug. 29	60.41
Oct. 31	59.98	Sept. 26	61.30	Aug. 22	61.58
Oct. 24	60.45	Sept. 19	60.83	Aug. 15	61.05
Oct. 17	59.22	Sept. 12	61.20	Aug. 8	61.33
Oct. 10	59.20	Sept. 5	60.60	Aug. 1	60.38

seaboard through our lines. This traffic has ceased for the present and we have no assurance of any future movements of Mid-Continent oil."

Southern Pipe Line has not paid regular dividends since March, 1926. In that month a $1 quarterly payment was made, which rate had been paid through 1925. Special cash distribution of $40 a share was made in July, 1926, and $10 in March, 1927, in connection with reduction in par value of capital stock to $5,000,000 from $10,000,000.

California Petroleum

California Petroleum Corp. and subsidiaries report for quarter ended September 30, 1927, net profit of $585.578 after interest, depreciation, depletion, Federal taxes, etc., equivalent to 28 cents a share (par $25) earned on 2,060,917 shares of stock. This compares with net loss of $91,512 in the preceding quarter and net profit of $1,835,838, or 96 cents a share on 1,903,783 shares of stock outstanding in third quarter of 1926.

Net profit for first nine months of 1927 totaled $1,526.692 after above charges, equal to 74 cents a share on 2,060,917 shares of stock, against net profit of $5,413,934, or $2.84 a share on 1,903,783 shares in the first nine months of the previous year.

Texas Pacific

Texas Pacific Coal & Oil Co. reports for quarter ended September 30, 1927, profit of $516,681 after expenses, etc., but before depreciation and depletion, comparing with $652.936 in the preceding quarter and of $1,065,093 in the third quarter of 1926.

Profit for the first nine months of 1927 was $1,863,553 before depreciation and depletion, against profit of $2.973,739 in the first nine months of the previous year. Outstanding stock amounts to 838,934 shares of $10 par stock.

NEW DEVELOPMENTS IN MOTOR FUELS AND LUBS AT A. O. M. A. SESSION

By J. B. Waldo

WEST BADEN, Ind., Nov. 5.—New developments in motor fuels and motor lubricants featured the program of the three-day annual meeting of the American Oil Men's Association. Approximately 400 oil men registered during the three days, including approximately 125 independent jobbers. A large number of supply and manufacturing concerns serving the jobber trade took advantage of the occasion to exhibit new equipment.

The principal paper on lubricants was presented by H. C. Maugey, chief chemist of the General Motors Research Motors Corp.'s laboratory. This paper on "Factors Affecting Lubrication" was well received by the association membership. The paper is published complete in this issue of The Oil and Gas Journal on Page 136.

Unfortunately, Mr. Maugey had to leave to catch a train shortly after he had presented his paper, cutting short the general discussion which followed. In the discussion it was pointed out that if a medium oil of the desired viscosity had been used by the motorist at the start and that if the dilution at equilibrium should be about 10 per cent the viscosity resulting would be about one-half the desired specification. Throughout his address Mr. Maugey emphasized the viscosity as the most essential quality. In reply to questions he declined to go on record in favor of any particular base crude and was understood to indicate that in his opinion the crude made less difference than some have claimed provided the viscosity, flash and fire were correct which depended very largely on the blending of the bases used and the skill of the refiner.

There were some inquiries regarding predilution of oils but his reply was that dilution was a relative condition and that every brand of oil from the time it is broken in the can is a prediluted oil.

Motors and Fuel

Dr. G. G. Brown, professor of chemistry at the University of Michigan and head of the research department of the Natural Gasoline Association of America, led the discussion on motor fuels. Dr. Gustav Egloff of the Universal Oil Products Co., who was scheduled to make an address on the same subject, was unable to be present.

In his talk, Doctor Brown began with the motor fuel of the past and traced the progress of refining gasoline from 1914-15 to the present time, making comparisons of the gasoline and the automobile engine, thus showing that the engine and the fuel for its operation had progressed hand in hand. In 1915, according to the speaker, refiners were not obliged to cut deeply into the crude to supply an adequate amount of gasoline. The increased demand for straightrun gasoline obliged the refiner to dip deeper and deeper into the barrel of crude. The engines of the earlier cars had practically the same compression ratio and horsepower as the much-talked-of engines of today. For example, one 1915 motor had practically the same compression ratio that it has today in its much-talked-of high compression engine.

The horsepower of the earlier engine was 75 horsepower compared with 80 horsepower today, the difference between the engine of 1915 and the newest type of this engine showing in the qualities very little change.

The years from 1916 to 1920 were classed by the speaker as the second period of motor and motor fuel development. During this period the expansion in the number of cars built and sold caused a very great increase in the demand for gasoline. To meet this demand for quantity, the quality had to be sacrificed as is shown in the increase in the gasoline endpoint. In some instances, the speaker stated, kerosene was blended with natural gasoline for motor fuel, indicating the excessive demand. Coincident with this change in the motor fuels designers of auto engines readjusted the motors to the new and practically the only grade of motor fuel available to the domestic users although good gasoline was exported in considerable volume. The change in the motor design to permit the use of badly knocking motor fuel decreased the compression and reduced the power.

The year 1920, according to the speaker, was the third period which was marked by the general use of gasoline with a high endpoint and a low volatility. The demand for a greater supply and at the same time for a more efficient motor fuel had much to do with the development of the improved cracking processes and the gradual introduction of cracked gasoline. At first there was a great prejudice against the cracked product, dealers specifying straight run gasoline and refusing to offer it for sale to the motoring customer. However, the demand for more and more motor fuel had forced the use of the cracked gasoline at first as a blend with straight run and later as its merits became recognized on its own qualities. The cracking process was found to produce a reliable gasoline of greater antiknock value than the high endpoint, low volatility straightrun or blended product.

The fourth period from 1920 to 1925 was a period of gradual increase in gasoline volatility and antiknock values. The cracking process was being rapidly developed during the period aiding if not the main cause for the change in the qualities mentioned.

Final Period

The final period extending from 1925 to the present time was marked by an overproduction of crude affording the refiner an abundant supply of desirable material. The result had been a great addition to the supply of motor fuels. At the same time, according to Doctor Brown, the clever advertising of ethyl gasoline and of the high compression motor with absolutely no emphasis on the general performance of the auto had brought about a marked tendency to push the sale of high compression motors and of antiknock gasolines, something not entirely justified by the general performance of the motor. The speaker pointed out that in his opinion odor, color and gravity are no longer major properties in gasoline. Engine performance, the speaker stated, is not affected by the endpoint and gravity.

Properties of Gasoline

The average motorist, the speaker claimed, noticed: First, ease of starting under different conditions; second, acceleration; third, power; fourth, fuel consumption; fifth, antiknock value. The speaker stated it as his judgment that the motorist of today would not buy a car with a special engine that required for its successful operation a special gasoline at a higher price when he can purchase a car with a low compression motor that will give excellent results, using the average grade of gasoline. In other words, "don't worry about all the antiknock talk." In reporting on the samples tested for antiknock value at the convention, Doctor Brown stated that at least 4 out of the 15 tested were of equal value with ethyl gasoline. No names were mentioned but it is understood that a full report of the findings will be made to the owner of the sample tested.

Salesmanship

On the afternoon of the second day, H. L. Fogleman of the Sheldon School of Salesmanship spoke on "Salesmanship vs. Price Cutting." Mr. Fogleman is an agreeable and forceful speaker and is known to the oil men from previous talks on the same or kindred subjects.

The banquet in the evening of the second day was well attended. The chief speaker of the evning was Edward Schlee of the Wayco Oil Co. of Detroit, who related some of his many experiences in his world flight. It will be remembered that Mr. Schlee with his pilot flew the plane, "Pride of Detroit," from that city as far as Japan when he was practically forced to refrain from trying to hop across the Pacific Ocean as it was considered too late in the season for the attempt.

A meeting of the directors was held Friday morning at which only routine matters were taken up. A list of new members was voted on. The financial conditions were very gratifying to the directors who stated that the total sum received from dues during the past year was much larger than for the preceding year. James A. Gilmore, secretary of the association, was in charge of the convention.

LESS OPTIMISM IN REFINED OIL MARKET

(Continued from Page 28)

given to removing the restrictions, refiners were confident this condition would lead to higher refined oil prices. But along with the new showings in Seminole, the Burbank Field, which has been generally considered well defined, produced a new well yielding 5,000 bbls. of high grade oil as its initial production. This well alone does not disturb the market so much but with the sale of new blocks of Indian lands in this territory coming in a few weeks, there is a great possibility of renewed activities in that field.

The development of the West Texas fields is also to be considered as a major factor in the general situation and with all of these developments coming so soon after the first short period of optimism, the immediate future of the refined oil market remains as much a matter of conjecture as ever.

Crude runs have not been materially reduced in Oklahoma and the November crude runs for the entire Mid-Continent actually show a slight gain. This indicates that production of refined products will continue at the same rate and with consumption of gasoline falling off as a seasonal decline, material will have to be run to storage. Compared to a year ago the crude runs are but 9,000 bbls. higher, which is a favorable factor, but the gravity of the average crude has been increased as a result of running so much Seminole oil and the gasoline yield is considerably higher.

Gasoline and Naphtha

U. S. Motor gasoline generally sold at 6⅛ cents with sufficient material moving at 6 cents and 6¼ cents to establish that range. Some material was available for resale at 5⅞ cents. There was some discussion of gasoline going out at 5¾ cents but none of it could be identified as going from the Oklahoma plants. Some Panhandle gasoline is finding its way into the Group 3 marketing territory at prices said to be slightly below Oklahoma and this is probably the material referred to when priced on the bas's of Group 3. The 60-62 400 endpoint and the 64-66 375 endpoint gasolines were in good demand but the quantities moved did not exceed the amount readily available and no price change was effected. An Oklahoma refiner has just closed a sale of 500 cars of this low endpoint material and this should strengthen the market, for a portion of it is expected to be purchased to augment the refiners own production. Naphtha prices remained unchanged and but little trading was done.

Natural Gasoline

The A and AA grades generally sold at 5⅞ cents with some material going at 6 cents. Several large export purchases are expected and several manufacturers have given out quotations for large amounts of export material, but as yet, nothing has developed to lend strength to the market from this angle. The B and BB grades are nearly as strong as the A grade but there is plenty of it available. The C grade is holding fairly well at 5⅝ cents but some of it is going out at 5½ cents.

Kerosene and Distillates

With plenty of material for export available along the Atlantic Coast, Oklahoma refiners were again dependent on the Midwest for the consumption of their production. The slow movement of furnace oil and the high production of the low endpoint gasolines has left a relatively large yield of high gravity kerosene. As furnace oil sales pick up, as they will have to do during the winter season, kerosene will probably recover from its present weakness, but in the mean time, slightly lower prices are expected.

The higher gravity low-flash distillates continue to prove the more popular and refiners who have consistently made this class of material over the past several years, report a good movement even at this time. In general, there is more material available than needed and until cold weather uses up a great portion of the stocks accumulated by marketers over the fall there probably will not be any great rush of business.

Fuel Oil and Gas Oil

Prices were generally unchanged with some low gravity material going out at 70 cents. The amount of this material was small, however. There is a surplus of fuel in practically all sections of the United States and this is restricting the Oklahoma outlet to its normal trade territory. The relatively low prices being quoted by Chicago, Panhandle, Kansas and Arkansas refiners has supplied stiff competition for the Oklahoma refiners and except where some characteristic in the fuel oil from these outside areas made its use impossible, such as the sulphur content or high cold test, Oklahoma refiners were placed at a decided disadvantage. Gas oil remained weak and its position will probably remain unchanged as long as the gasoline market remains weak.

Lubricants and Wax

There was no change of note in the general lube market except the further weakening of bright stock. Most of the material was sold at prices ranging from 25 to 25½ cents but outside refiners were threatening the Oklahoma market with material fractionally lower.

Wax also remained unchanged with but little hope for improved prices in the immediate future.

AMARILLO-DENVER PIPE LINE

NEW YORK, Nov. 7.—Colorado Interstate Gas Co. has placed an order with the National Tube Co. for 100,000 tons of 22-inch pipe for the Amarillo-Denver line.

Keeping Gas From Freezing at Well

Refrigeration When Fluid Is Turned Into Line from High-Pressure Well Often Is Sufficient to Shut Off Line

By D. A. Sillers*
Superintendent of Gas Measurement, Lone Star Gas Co., Dallas, Tex.

When a high-pressure gas well is turned in line refrigeration is generated as the gas expands from the well pressure to the line pressure, and is often sufficient to freeze the condensed liquid and shut off the line. It is evidently the water content mixed with the gasoline that freezes, as the gasoline itself will not freeze above 150 degrees Fahrenheit, approximately. It is necessary, therefore, either to heat the gas and liquid above freezing at the place of expansion or to remove the liquid before the temperature is lowered to freezing. The latter is really preferable as the liquid in the line causes a great deal of trouble in gas measurement, lowers the line capacity and seriously interferes with gas transportation.

In this connection we have had an experience where this very high gravity gasoline had collected in a low spot in the line. A sudden drop in the line pressure caused such a rapid evaporation of the gasoline that the resulting refrigeration caused the line to freeze and shut off the flow of gas.

In a previous paper read at the Cincinnati convention last spring we discussed the methods that had been used and experimented with up to that time. One of the oldest practical methods we have used has been the installation of small by-pass lines around the master gate. A tap was made above and below the master gate and a one-eighth inch or one-fourth inch by-pass from 3 feet to 6 feet long was used. On some wells, two of these by-passes were used. These by-passes are, in effect, choke nipples. This type of installation, however, is subject to danger from the high pressure on these small fittings.

Long Choke Nipple Helps

The use of small by-passes indicated that a long choke nipple generated a certain heat or friction which tended to counteract the refrigeration due to expansion. It also seems that the full round orifice of the choke nipple is less subject to freezing than the extremely narrow moon-shaped opening in a pinched gate valve.

We made several choke nipples using a piece of Shelby steel tuning 24 inches long welded into a piece of 2-inch pipe. Used on a well with 1,000 pounds rock pressure, 2,500 M. C. F. open flow, working pressure from 600 to 700 pounds feeding into a line at a pressure of about 375 pounds, we obtained satisfactory results from such a choke. There was not sufficient freezing to shut off the well before the rock pressure was brought down to the working pressure and from this point on the choke nipple was able to maintain a delivery temperature above freezing. After the initial head was pulled off the well, the volume delivered was constant.

On wells where a single choke can be used and it is desired to vary the delivery a choke rack can be made to hold either two or three choke nipples of varying size so that the delivery can be varied at will.

The amount of gas delivered by a choke nipple varies according to the individual characteristics of the gas, the inlet pressure, the outlet pressure, the diameter of the choke, and the length of the choke. The attached curve shows the approximate size choke nipples to use for the different capacities desired.

In our experience we have not had any freezing on wells where the drop in pressure is less than about 500 pounds.

Old Method Unsatisfactory

On another well with about the same rock pressure and working pressure, we evidently had a higher water content as the old method of small by-passes did not work satisfactorily. On this well we used a choke nipple five-sixteenths-inch in diameter and 6½ feet long. Here we obtained an initial outlet temperature of 35.6 degrees Fahrenheit, which increased to 54.5 degrees Fahrenheit, when the initial rock pressure was pulled down. From this we believed that increasing the length of the choke nipple would take care of any conditions that we might encounter.

We next started experimenting with one of our largest wells in Oklahoma. This well had 1,100 pounds rock pressure which we had never been able to reduce; 70,000 M. C. F. open flow feeding into a line pressure of about 200 pounds. We tried a choke nipple on this well and found it would freeze up in about two hours. We then had the choke nipple discharged into two joints of 6-inch pipe. This allowed us to use the well for about 12 hours at a time when we would find the 4-inch line to the orifice plate filled with an accumulation of ice. This was during the summer time and we could then wait for the ice to melt and again use the well for 12 hours. This, however, would be far from satisfactory operation in the winter time.

We then experimented with a well with 1,150 pounds rock pressure, 51,000 M. C. F. open flow discharging into a line pressure of 150 pounds. We used a choke nipple with an inside diameter of one-fourth inch and 19 feet long. This nipple froze up after six hours and indicated that the length of the choke nipple was not the final solution of the problem.

We then connected a one-fourth inch by 3-foot choke nipple discharging into a vertical drip which discharged into another one-fourth inch by 3-foot choke. This arrangement passed gas for about 16 hours with a gradual decreasing flow. The first choke dropped the pressure to 620 pounds and precipitated about 6 gallons of fluid per hour into the drip at 40 degrees Fahrenheit. The freezing occurred at the outlet choke nipple where we obtained a temperature of 2 degrees Fahrenheit. It was evident that the first cut in pressure did not remove all of the liquid.

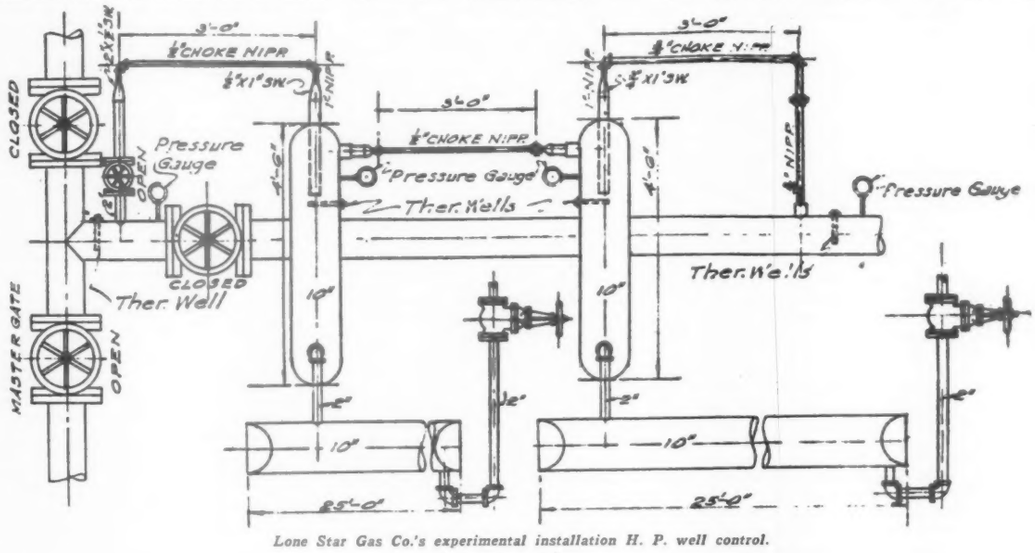
Experiment With Orifice Plate

It had been suggested to us that a thin edge orifice plate would handle a drop in pressure with a minimum freezing effect. We tried an orifice plate in the place in the first choke in the above installation. We found that the plate with the bevel turned upstream or downstream resulted in freezing in about the same length of time as the installation using the choke. However, we obtained a very ragged chart showing alternate freezing and breaking through, which would make the chart very difficult to read.

We next installed a one-half inch by 3-foot choke, a vertical drip, another one-half inch by 3-inch choke, a second vertical drip and a three-quarter inch by 3-foot choke. The first choke cut the pressure to 750 pounds at 56 degrees Fahrenheit, and precipitated about 4 gallons of liquid per hour. The second choke cut the pressure to 600 pounds at 42 degrees Fahrenheit, and precipitated about 10 gallons of liquid per hour. The third choke cut the pressure to 170 pounds line pressure and gave a temperature of 14 degrees Fahrenheit, delivering at the rate of 135 M. C. F. per hour. After 24 hours operation the rock pressure was pulled down from 1,150 pounds to 1,075 pounds which has since remained constant. The pressures, temperatures and deliveries throughout the installation have also remained practically constant.

The vertical drips were connected to storage tanks to hold the accumulation of liquid. These storage tanks can then be emptied periodically.

This whole installation was made up in the form of a by-pass around the 4-inch gate. We believe that this type of installation has many advantages. We have made it possible to use wells of high rock pressure and large water content which we have never previously been able to use satisfactorily. We have eliminated the fire hazard due to using heaters. We have removed the liquid which would give us trouble going down the line. The constant delivery from this installation gives a very readable meter chart. The delivery from the well can be regulated by the proper choice of choke nipples and, if desired, a pair of choke nipples can be installed in each instance and the use of one or the other, or both of these sets, will give three delivery rates. With this installation one man can put the well into operation by opening a 2-inch gate and there is no danger of twisting off the stem of the master gate or the line gate.



Lone Star Gas Co.'s experimental installation H. P. well control.

WOMAN SUES BROTHER IN ROW OVER LEASES

SHREVEPORT, La., Nov. 7.—Sister is pitted against brother in a case on trial in the El Dorado, Ark., division of Federal Court in which Mrs. O. A. Staples is seeking to recover $440,000 alleged due in liquidation of damages she says she suffered in an oil lease deal executed by John R. Ingram and W. S. Sloan, trustees of the Ingram estate.

Mrs. Staples, who is a licensed attorney, is conducting her own case before Judge Youmans. She alleges that Sloan, as trustee of her mother's estate, and her brother, J. R. Ingram, who held her power of attorney, conspired to sell leases on the Ingram estate consisting of 355 acres in Sections 24 and 25, 3 miles west of El Dorado at a price lower than their real value. Most of the land was leased before the El Dorado discovery well blew in. Mrs. Staples asserts that 110 acres of the land leased was her own and that she had a one-seventh interest in the remaining 245 acres. She seeks to recover $319,000 on the 110 acres and $125,000 as her one-seventh interest in the 245 acres.

OKLAHOMA P. L. STATEMENT

The Oklahoma Pipe Line Co., which serves fields in Oklahoma and Kansas, shows runs in October of 3,893,415.83 bbls., a daily average of 125,594.06 bbls. Its shipments (deliveries) were 3,838,711.20 bbls., a daily average of 123,829.39 bbls. Its crude oil stocks at the close of October were 2,717,329.67 bbls. Compared with the statement for September the statement shows a decline of 6,829 bbls. per day in runs from wells; an increase of 984 bbls. per day in shipments and an increase of 131,825 bbls. in crude stocks.

TRANSCONTINENTAL PECOS LINE

NEW YORK, Nov. 7.—The Transcontinental Oil Co. may not go ahead with its west Texas-Gulf pipe line if the Illinois Pipe Line Co. decides to build its Pecos County line to Houston instead of Corpus Christi as reported here.

*Before Southwest Division, Natural Gas Department, American Gas Association, Houston, Tex.

A. P. I. PROGRAM COVERS DIVERSIFIED SUBJECTS

(Continued from Page 33)

Committee on Oil Field Boilers.
Committee on Rig Irons.
Committee on Standard Rigs and Derricks.
Committee on Wire Rope and Manila Cordage.
Special papers:
"Some Advantages of Standardized Rigs and Derricks and Dig Irons," C. D. Watson, Carter Oil Co. (Illustrated with slides.)
"A. P. I. Belting," F. O. Prior, Midwest Refining Co. (Illustrated with slides.)
"Evaluating Wire Rope Life." (Speaker to be announced.)
General discussion.
Note—The sessions on standardization this year will be of special interest to field superintendents, etc., and will be confined principally to the advantages and the results gained from the use of A. P. I. standards.

Group 3.

General topic: Oil Accounting. (West ball room.)
Report of Committee on Uniform Methods of Accounting, M. W. Mattison, chairman.
General discussion of report.
"Co-operation Between Executives and Comptrollers," Prof. Roy Kester, Columbia University.
"Machine Handling of Accounts Payable," George H. Foster, Union Oil Co. of California. General discussion.

Group 4.

General topic: Transportation. (South ball room.)
Railroad. (Program to be announced later.)
General discussion.
Automobile truck:
"Handling Motor Truck Equipment," Roy F. Fike, Mid-Continent Petroleum Corp.
"Motor Vehicle Transportation," J. F. Winchester, Standard Oil Co. of New Jersey.
General discussion.

Afternoon.

2 p. m.—Group meetings:

Group 1.

General topic: Refinery Technology. (North ball room.)
"Pipe Still Distillation," A. G. Peterkin, Jr., Atlantic Refining Co.
"Recovery of Acid From Sludge," Ralph A. Halloran, Standard Oil Co. of California.
"Vacuum Distillation," Frank A. Howard, Standard Development Co.
"Some Facts Concerning Vapor Phase Cracking," Luis de Florez, consulting engineer.
"Improved Method of Treating Cracked Naphtha," Ralph A. Halloran, Standard Oil Co. of California.
General discussion.

Group 2.

General topic: Development and Production Engineering. (Grand ball room.)
"Value of Gas in the Conservation of Oil," Dr. W. P. Haseman, Marland Oil Co.
"Portland Cement for Shutting Off Water in Oil Wells," J. F. Hough, Portland Cement Association. (Illustrated with slides.)
"The Advent and Place of the Development and Production Engineer in the Oil Industry," A. C. Rubel, Union Oil Co. of California.
General discussion.

Group 3.

General topic: Oil Accounting. (West ball room.)
"Realization Methods in Refining Costs," M. A. Chambers, Panhandle Refining Co.
"Gasoline Taxes in Accounting," George F. Smith, Continental Oil Co.
"I. C. C. Classification of Pipe Line Accounts," Ralph Hare, Prairie Pipe Line Co.
"Refinery Accounts," R. D. Mathews, Union Oil Co. of California.
General discussion.

Group 4.

General topic: Fire Prevention and Safety. (South ball room.)
"Successful Methods of Plant Protection From Fire," C. J. Cutting, Atlantic Refining Co.
"Static—What It Is and How It Is Produced." (Speaker to be announced.)
"Fire Laws for the Oil Industry," Frank A. Epps, Trade Water Oil Co.
"Preventing Accidents in the Petroleum Industry," H. N. Blakeslee, Petroleum Section, National Safety Council.

Evening.

8 p. m.—Group meetings:

Group 1.

General topic: Refinery Technology. (North ball room.)
The meeting will be devoted to a general discussion of problems of refinery technology.
Note—If the board of directors authorizes the creation of a Division of Refinery Technology, as recommended by the Committee on Technical Relationships, the members of the institute present will elect the officers of the division for the year 1928 and discuss plans of activity for the division, including the organization of geographical sections.

Group 2.

General topic: Development and Production Engineering. (Grand ball room.)
The meeting will be devoted to a general discussion of problems of development and production engineering.
Note—If the board of directors authorizes the creation of a Division of Production Engineering, as recommended by the Committee on Technical Relationships, the members of the institute present will elect the officers of the division for the year 1928 and discuss plans of activity for the division, including the organization of geographical sections.

Group 3.

General topic: Oil Accounting. (West ball room.)
The meeting will be devoted to a general discussion of the problem of oil accounting.
Note—If the board of directors authorizes the creation of a Division of Oil Accounting, as recommended by the Committee on Uniform Methods of Oil Accounting, the members of the institute present will elect the officers of the division for the year 1928 and discuss plans of activity for the division, including the organization of geographical sections.

Thursday, December 2

Note—Thursday morning and afternoon will be devoted to group sessions, arranged by general topics, at which the various subjects first will be treated in addresses and papers by selected speakers. After each speaker has finished, opportunity will be given for discussion of the subject.

Morning.

10:30 a. m.—Meeting of board of directors. (Private dining room No. 1.)
Luncheon for members of the board at noon. (Private dining room No. 2.)
10 a. m.—Group meetings:

Group 1.

General topic: Natural Gasoline. (North ball room.)
(The program for this group meeting is being arranged by the Association of Natural Gasoline Manufacturers and it will be announced later.)

Group 2.

General topic: Standardized Oil Field Equipment. (Grand ball room.)
Condensed reports of the following standardization committees:
Committee on Cable Drilling Tool Joints.
Committee on Rotary Drilling Equipment.
Committee on Oil Country Tubular Goods.
Committee on Pumping Equipment and Engines.
Committee on Steel Storage Tanks.
Special papers:
"Results of Usage and Advantage of Standard A. P. I. Taper Joints for Rotary and Cable Tool Drilling," R. A. Wilson, Guiberson Corp. (Illustrated with slides.)
"Purchasing A. P. I. Standardized Material," R. M. Ketchum, General Petroleum Corp.
"Advantages and Results of Experiences in the Use of A. P. I. Standards on Pumping Equipment, i. e., Tubing, Working Barrels and Parts, Sucker Rods, etc.," T. E. Swigart, Shell Co. of California. (Illustrated with slides.)
"A. P. I. Standard Boilers," R. G. Hamaker, Humble Oil & Refining Co.
General discussion.

Group 3.

General topic: Taxation — Federal, State and Municipal. (Main dining room.)
"Federal Taxation," A. W. Gregg, former assistant to the secretary of the treasury.
"State and Municipal Taxation," Frank E. Packard, Standard Oil Co. of Indiana.
General discussion of problems of taxation.

Group 4.

General topic: Corrosion of Oil Industry Equipment. (Grand ball room.)
"Corrosion in Refinery Equipment," Gustave Egloff, Universal Oil Products Co.
"Refinery Corrosion Problems," Brian Mead and Stewart Coleman, Humble Oil & Refining Co.
General discussion of refinery corrosion problems.
"Report on A. P. I. Temporary Committee on Corrosion and Digest of Answers to Questionnaire Issued by Committee," F. N. Speller, chairman, National Tube Co.
General discussion.

Afternoon.

2 p. m.—Group meetings:

Group 1.

General topic: Marketing Petroleum Products. (North ball room.)
"What Price Free Equipment?" B. H. Anglin, Indian Refining Co.
"Credit," John D. Gill, Atlantic Refining Co.
"Fields for Increased Consumption of Petroleum Products, Automatic House Heating etc., Harry D. Freuauff, Henry L. Doherty & Co.
"Double Standards," L. V. Nicholas, Independent Oil Men of America.
General discussion of marketing problems.

Group 2.

General topic: Fundamental Research in Petroleum. (West ball room.)
Note—This group meeting will be devoted to a general discussion of the institute's program of fundamental research in petroleum physics, chemistry, and geology financed through funds donated by John D. Rockefeller and the Universal Oil Products Co.
Brief talks will be made by three members of the Central Petroleum Committee of the National Research Council, to wit:
Dr. H. S. Taylor, professor of physical chemistry at Princeton University, and chairman of the Central Petroleum Committee;
Dr. Frank C. Whitmore, professor of chemistry at Northwestern University, and chairman of the Division of Chemistry and Chemical Technology, National Research Council; and
E. DeGolyer, Amerada Petroleum Corp., and member Committee on Studies in Petroleum Geology of the National Research Council.
Following these talks, it is expected that those interested in this general topic will participate in a round table discussion with especial reference to co-operation between technical men of oil industry and the research follows.

Group 3.

General topic: Regulation—Federal, State and Municipal. (South ball room.)
"Federal Regulations," T. K. Schumuck, The Texas Company.
"State and Municipal Regulations," W. T. Holliday, Standard Oil Co. of Ohio, and Edwin S. Hall, Standard Oil Co. of New Jersey.
General discussion of problems of regulation.

Group 4.

General topic: Corrosion of Oil Industry Equipment. (Grand ball room.)
"Corrosion of Tankers and Marine Equipment," Oliver Duke, Sun Oil Co.
"Pipe Line Corrosion," A. S. Jones, Associated Pipe Line Co.
"Reconditioning of Pipe Lines"—a motion picture film.
"Requirements of Good Protective Coatings," W. H. T. Thornhill, Wailes Dove-Hermiston Corp.
General discussion pipe line protection.
General discussion of corrosion of oil well equipment.
Note—The institute's Temporary Committee on Corrosion will arrange an exhibit of protective coatings for equipment which will be shown to those interested in the subject of corrosion in one of the rooms (the number to be announced later) in the Stevens Hotel.

Evening.

8 p. m.—Annual dinner. (Grand ball room.)
Playlet: "So's Your Oil Man," California Wildcats.

NORTH AND WEST TEXAS

(Continued from Page 39)

and No. 7 made 296 bbls. initial at 1,271-89 feet.

Kone Production Co.'s No. 7 Hickman was dry and abandoned at 1,250 feet. Phillips Petroleum Co.'s No. 5 Newsome made 400 bbls. at 1,320-36 feet following a 4-quart shot at 1,330-34 feet.

Rex-Tex & Pytex Oil Co.'s No. 1 Scott topped Caddo lime at 1,835 feet and was drilling at 1,885 feet.

Russell's No. 1 Early was dry and plugged at 1,352 feet.

Skelly Oil Co.'s No. 18 Ellis was good for 817 bbls. at 1,323-52 feet; No. 19 Ellis made 250 bbls. at 1,336-44 feet. total depth 1,362 feet. Sinclair Oil & Gas Co.'s No. 9 Smith was good for 150 bbls. from sand at 1,321-36 feet.

E. L. Smith Oil Co.'s No. 3 Moore had dry sandy shale from 1,282 to 1,292 feet and was plugged at 1,325 feet; No. 20 Smith was a 200-bbl. well at 1,346-69 feet. West & H-Y Oil Co.'s No. 22 Newton was temporarily abandoned at 1,050 feet. Wheelock & Collins' No. 2 Smith was a 65-bbl. producer after a 10-quart shot at 1,334-44 feet. Sand was topped at 1,325 feet.

Bush & Spinney's No. 1 Richardson was estimated good for 35 bbls., but is not completed. It will set 5-inch casing with packer and test the formation.

Winkler County

Murchison Oil Co. and Cranfill Brothers' No. 1 Grisham-Hunter-C (formerly carried as No. 1-B), in Section 35, Block B-5, was completed for 365 bbls. after a shot of 370 quarts at 2,615-2,915 feet.

North Central Texas Completions

Callahan County

Bradstreet's No 2. Walker was drilling at 1,705 feet in sand topped at 1,671 feet and was estimated good for 100 bbls. Jones Oil Syndicate temporarily abandoned their No. 1 Pate. Prairie Oil & Gas Co.'s No. 5 Baum had sand from 1,676 to 1,700 feet and 1,702-35 feet. Total depth is 1,750 feet and after a 30-quart shot from 1,681 to 1,728 feet it made 50 bbls. Seaboard Oil & Gas Co.'s No. 1 McWhorter was dry and abandoned at 2,585 feet.

Coleman County

English and others' No. 1 Harris had sandy lime at 4,060-70 feet and 4,072-95 feet, making 1,500,000 feet of gas and spraying 15 bbls. of oil daily. It is drilling ahead. The Texas Company's No. 1 Green was dry and abandoned.

Eastland County

Gulf Production Co.'s No. 9 J. D. Parsons-A swabbed 100 bbls. the first 24 hours and 58 bbls. the second day from sand at 1,614-19 feet and was being put on the pump. Hooser's No. 4 Fox was estimated good for 75 bbls. on the pump from sand at 1,619-21 feet. Mook-Texas Oil Co.'s No. 1-B Casey flowed 23,000,000 feet of gas and estimated 75 bbls. of oil from sand at 3,013-22 feet.

Associated Petroleum Co.'s No. 2 Luse was dry and abandoned at 3,940 feet. Lowe, Delaney and Carter's No. 2 Barnett was also a failure at 3,042 feet. Prairie Oil & Gas Co.'s No. 1 McFall topped the black lime at 2,977 feet and after a 150-quart shot at 3,000-50 feet made 40 bbls. of oil and 7 bbls. of water. Root and others' No. 3 Watson had 2,000,000 feet of gas at 3,700-18 feet and oil at 3,730-40 feet. After a 60-quart shot at 3,730-40 feet it was estimated good for 40 bbls.

McCulloch County

Cobb's No. 1 Williamson was dry and abandoned at 740 feet.

Shackelford County

Sinclair Oil & Gas Co.'s No. 3 Nail

was dry and abandoned at 2,014 feet. Texas Unity Oil Co.'s No. 1 Russ-Webb made 8 bbls. at 969-72 feet.

Palo Pinto County

Mountain Oil Co.'s No. 1 Costello was dry and abandoned at 3,978 feet.

Stephens County

Texas Pacific Coal & Oil Co.'s No. 2 Works was dry and abandoned at 2,225 feet.

Wichita Falls District Completions

Archer County

Burns and The Texas Company's No. 1 Harris was dry and abandoned at 1,400 feet. Consolidated Oil Co.'s No. 2 Bearden also was a duster at 1,101 feet. Consolidated Oil Co. and Continental Oil Co.'s No. 5 Netherton likewise was abandoned at 1,570 feet. Hart and others' No. 1 Brown was a failure at 1,503 feet. Navarro Oil Co.'s No. 3 Wilson was plugged at 1,485 feet. P. Steed and others' No. 4 Perkins made 15 bbls. at 1,758 63 feet. United Producers' No. 1 Wilson was a failure at 1,556 feet.

Baylor County

Mel Richards' No. 1 Young was plugged and abandoned at 1,465 feet. It had a show of oil and salt water at 1,426-32 feet.

Cooke County

Continental Oil Co.'s No. 1 Koelzer made 22 bbls. of oil and 2 bbls. of salt water from broken oil sand at 1,373-92 feet. Danciger Oil & Refining Co.'s No. 1 Harris-A was dry and abandoned at 1,783 feet. Houseman and others temporarily abandoned their No. 1 Cox at 1,270 feet. Miller Drilling Co.'s No. 2 Koelzer made 43 bbls. initially from broken sand at 1,364-90 feet. The Texas Company's No. 3 Hacker swabbed 90 bbls. the first 18 hours from sand at 1,643-90 feet and was put on the pump.

Grayson County

Tucker & Everett's No. 1 Handy & Thorn was abandoned as dry at 3,033 feet.

Jack County

Creighton & Shadbolt's No. 1 Zuber was plugged at 806 feet. Mitchell & Spoonts' No. 1 McGaslin was also a failure at 690 feet. So was Bland & Strang's No. 6 Brentmoor, Inc., at 800 feet. Connell & Wixon's No. 1 Ellis was estimated good for 15 bbls. at 486-501 feet. Galbrath and others' No. 1 Sloan and others was dry and abandoned at 620 feet.

Montague County

Arco Oil Co.'s No. 2 Maddox-B made 35 bbls. at 922-37 feet. Bridwell & Heydrick and Continental Oil Co.'s No. 1 Brown was plugged as a failure at 1,994 feet. Bridwell & Heydrick's No. 1 Salmon-A made 60 bbls. at 1,180-91 feet; No. 2 Salmon-A made 80 bbls. at 1,160-79 feet. Sigler and associates' No. 3 Maddox was good for 35 bbls. from sand at 915-35 feet. E. W. Skinner and others' No. 3 Maddox made 8 bbls. of oil and 15 bbls. of water at 804-16 feet. Dickey and others' No. 2 Williams was dry and abandoned at 1,457 feet.

Throckmorton County

Associated Petroleum Co.'s No. 1 Buchanan was a failure at 4,370 feet; No. 2 Stacey was spraying an estimated 20 bbls. from sandy lime at 3,340 54 feet. Humble Oil & Refining Co.'s No. 1 Matthews was dry and plugged at 4,395 feet.

Wichita County

G. S. Dudley's No. 3 Kemp & Kempner made 20 bbls. of oil and 5 bbls. of water from sand at 1,629 36½ feet. Henry Hobbs' No. 1 J. A. Watkins was estimated good for 100 bbls. from sand at 1,523-25 feet. John O'Neil and others' No. 1 Kemp & Kempner was put on the pump and estimated good for 40 bbls. at 1,813-16 feet. The Texas Company's No. 334 W. T. Waggoner had sand at 526-38 feet, lime at 538-40 feet, and shale at 540-41 feet, making 5 bbls. initially; No. 336 Waggoner was a 95-bbl. producer from sand at 1,975-77 feet.

Wilbarger County

The Texas Company's No. 1 Waggoner-B pumped 414 bbls. initially from sand at 2,395-2,407 feet. Waggoner Refining Co.'s No. 4 Waggoner-B was dry and abandoned at 2,470 feet.

Young County

Reed & Anderson's No. 2 Leberman was dry and plugged at 861 feet. Atlantic Oil Producing Co. and others' No. 2 Keen was estimated at 30 bbls. from 807-19 feet.

Conner's No. 1 McCluskey flowed 20 bbls. an hour and some water from lime at 4,184-4,232 feet. This is an old well deepened. J. S. Cosden's No. 1 Jones is plugging to abandon at 4,860 feet. Pitzer & West's No. 2 Morrison-B flowed 700 bbls. through 3-inch tubing with packer from sand at 2,214-25 feet. Roxana Petroleum Corp.'s No. 12 Ford flowed 105 bbls. by heads following a shot of 80 quarts at 4,260-4,342 feet. R. C. Stovall's No. 8 fee swabbed 60 bbls. from lime at 3,901-4,065 feet. United Royalties Co.'s No. 1 Thompson flowed 25 bbls. from sand at 2,082-90 feet.

NORTH CENTRAL AND WEST TEXAS
Estimated Daily Production
Week Ending November 5, 1927

Ranger District—	Prod'n.
Brown County	19,150
Callahan County	4,365
Coleman County	1,140
Comanche County	1,440
Palo Pinto County	435
Ranger	8,410
Shackelford County	4,980
Stephens County	8,890
Total Ranger District	48,810
Decrease	448
Wichita Falls District—	
Archer County	23,440
Baylor County	80
Clay County	575
Cooke County	5,505
Jack County	1,015
Montague County	10,055
Throckmorton County	1,250
Wichita County	28,370
Wilbarger County	10,830
Young County	12,580
Total Wichita Falls District	93,700
Increase	951
Total North Central Texas	142,510
Increase	503
West Texas District—	
Big Lake Field	23,020
Crane County	108,780
Crockett County	2,451
Ector County	12
Glasscock County	S.D.
Howard County	4,273
Jones County	1,387
Loving County	86
Mitchell County	3,475
Pecos County	33,375
Runnels County	100
Scurry County	45
Upton County	18,556
Winkler County	18,046
Total West Texas District	213,606
Decrease	5,380
Grand total N. and W. Texas	356,116
Decrease	4,877

TEXAS PANHANDLE

(Continued from Page 40)

Loving County		
Lockhart & Co.:		
Allen	1	86
Mitchell County		
Atlantic O. P. Co.:		
Womack	8	220
California Co.:		
All leases	96	2,500
F. J. Carey:		
E. Morrison	1	20
Eastland Oil Co.:		
All leases	9	170
Magnolia Pet. Co.:		
All leases	22	535
Tidal Oil Co.:		
Both leases	2	30
Total Mitchell County	138	3,475
Average per well		25
Pecos County		
Allsman & Bell:		
River Bed	2	130
California Co.:		
Yates	4	4,350
Smith	2	1,500
Gulf Prod. Co.:		
M. A. Smith	1	285
Humble O. & R. Co.:		
M. A. Smith	1	240
Marland Oil Co.:		
Yates-A	2	1,190
McMan and Marland:		
Yates	6	4,380
Mazda Oil and Savoy Oil:		
Smith	1	145
Mid-Kansas and Transcont.:		
Smith-Taylor	2	925
Yates-B	7	10,550
Yates-B	4	5,735
Yates-C	1	845
Mid-Kan and Transcont. total	14	18,055
Red Bank Oil Co.:		
Smith	1	130
Roxana Pet. Corp.:		
Tippett	1	500
Smith-A	1	135
Simms Oil Co.:		
Smith	2	2,335
Texon O. & L. Co.:		
Yates	1	0
Total Pecos County	39	33,375
Average per well		855
Runnels County		
Ladd, Sillix et al:		
McMillan	1	100
Scurry County		
Northwest Oil Co.:		
All leases	5	45
Upton County		
Amerada Pet. Corp.:		
Hughes	6	250
Atlantic O. P. Co.:		
Sherk	1	30
Bryant and Atlantic:		
Baker	2	35
Champlin O. & R. Co.:		
Lane	1	605
Dixie Oil Co.:		
Burleson	26	2,080
Hughes	10	195
Gulf Prod. Co.:		
All leases	18	2,740
Humble O. & R. Co.:		
Burleson	4	25
Ricker	6	790
Independent O. & G. Co.:		
Burleson, Woodley, Taylor	26	715
McMan O. & G. Co.:		
Baker	2	25
Marland Oil Co.:		
All leases	75	2,390
Prairie O. & G. Co.:		
J. F. Lane	4	660
Allie Lane	4	715
Pure Oil Co.:		
Lane	1	70
Republic Prod. Co.:		
Baker	6	110
Roxana Pet. Corp.:		
Bowen	26	1,870
Estep	3	45
Hughes	10	285
Simms Oil Co.:		
Shirley	3	50
Snowden & McSweeney:		
Hughes	1	185
Sun Oil Co.:		
Burleson & Taylor	10	210
The Texas Company:		
Burleson	4	35
King	12	360
Perry	3	1,005
Texon O. & L. Co.:		
Sherk	1	16
Tidal Oil Co.:		
Hughes	1	85
Burleson	2	15
Texas Pacific C. & O. Co.:		
Burleson	1	35
Sherk	4	115
Lane-A	10	2,655
Lane-B	1	28
Wentz Oil Corp.:		
Sherk	3	115
White Eagle O. & R. Co.:		
Hughes	1	12
Total Upton County	288	18,556
Average per well		64
Reagan County		
Big Lake Oil Co.:		
University	121	17,990
Texon O. & L. Co.:		
University	79	5,030
Total Reagan County	200	23,020
Average per well		115
Winkler County		
Cranfill & Reynolds:		
Ida Hendrick	1	5,125
Gulf Prod. Co.:		
Hendrick	2	1,640
Independent O. & G. Co.:		
Hendrick	1	35
Landreth & Roxana:		
Hendrick	2	*2,040
Murchison Oil Co. and Cranfill Bros.:		
Grisham-Hunter	1	350
Grisham-Hunter-B	1	311
Pure Oil Co.:		
Grisham-Hunter	1	990
Roxana Pet. and Llano Oil Co.:		
Scarborough	1	20
Southern Crude O. P. Co.:		
T-67 Hendrick-A	1	295
T-67 Hendrick-C	2	725
T-88 Hendrick-A	1	880
T-88 Hendrick-B	1	5,110
Southern Crude O. P. Co. total	5	7,010
Texon O. & L. Co.:		
Grisham-Hunter-A	1	525
Total Winkler County	16	18,046
Average per well		1,128
Grand total West Texas	1,077	213,606
Average per well		198

*Production partly pinched in.

MEETING SULPHUR OIL AND GAS PROBLEMS

(Continued from Page 29)

free from the carbon and sulphur which causes all the trouble. It reaches the discharge at 20 pounds pressure and does not have to be recompressed, although the company has a large compressor installed for use in case higher pressure is needed.

This plant, according to Gulf company officials, has paid for itself many times over as well as eliminating the great hazard to men working in this gas.

One man may operate this plant as everything is automatic. The pumps are driven by electric power and are controlled by the pressure rising or falling, as well as the fans which blow the gas out in the discharge.

Late Fields

(Continued from Page 40)

big producer in Pine Island Trinity horizon when No. 6 J. F. Herndon, Section 14-21-15, blew in with an estimated 600 bbls. of 40.7 gravity oil and 2,000,000 feet of gas from 3,935 feet. The crew was coming out with drill stem to change bits and had all but 14 joints out when the well came in. The company's No. 8 Herndon, in the same section, was listed No. 3 as a 500-bbl. producer free of water. Its No. 36-B Brinkerhoff, Section 30-13-10, in the old Gusher Bend district of Red River Parish, has been put on the beam at 2,538 feet but has not had a gauge. Greenwood Production Co.'s No. 1 McCutchen, Section 15-17-16, Caddo Parish, is abandoned at 3,046 feet. Had this wildcat been a success it would have extended production in the Greenwood gas district approximately 6 miles east. It gauged 700,000 feet of gas with a salt water flow at 2,557-65 feet but below that nothing warranting a test was found. It is one of the deepest holes drilled in that locality.

WEST TEXAS

FORT WORTH, Tex., Nov. 8.—In the Yates Pool, Pecos County, Mid-Kansas and Transcontinental's No. 6 Yates-B, Section 61, flowed 2,582 bbls. through one 4-inch line from pay at 970-1,072 feet. No. 5 Yates-B flowed 22 bbls. hourly, while drilling at 985 feet in pay topped at 940 feet. Humble Oil & Refining Co.'s No. 2 Smith was flowing 88 bbls. hourly while drilling at 1,477 feet in pay topped at 1,425 feet.

In Andrews County, J. S. Cosden's No. 1 Ratliff & Bedford is drilling at 3,285 feet in anhydrite with no showing of oil.

George Calvin's test is drilling at 1,900 feet in northern Winkler County. R. S. Matthews' No. 1 Cosden was drilling at 3,890 feet in anhydrite. Amerada Petroleum Corp.'s No. 1 Walton, northeast of the Hendricks Pool in Winkler County, cored brown lime at 1,332-35 feet for 501 feet above sea level which is much higher than anticipated.

Atlantic Oil Producing Co. is going to lay a 10-inch welded pipe line from the Hendrick Pool to Midland, about 70 miles, where it has a tank farm under construction. The pipe was shipped from the mills yesterday.

In Crane County, Duffey, Gault & Brown's No. 1 Cowden topped lime at 2,729 feet and was shut down for orders. In Pecos County Henshaw's No. 1 Schimmel, Section 29, Block 144, T. & St. L. Survey, cored solid salt at 755-65 feet which is high for that locality.

RECENT COMPLETIONS CHANGE SITUATION

(Continued from Page 38)

low and began flowing 90 bbls. an hour. It had previously been believed since Little River was defined on this side that little oil would be found in this area, as it was believed to be a low.

Nearing Wilcox Uplift

The Independent well is approaching that part of Oklahoma where the geologists think that the Wilson formation is on the uplift running toward the Arbuckle Mountains. There is little oil to be anticipated on the uplift of the Wilcox according to geological belief.

Each well which has opened previous pools in the Greater Seminole has found the Viola limestone considerably higher than the new wells. A list of pool openers and their minus data giving the depth of the top of the Viola below sea level is given below:

	Feet
Independent-Garland's Fixico, Seminole City	—3,140
Gypsy-Amerada's State Land, Earlsboro deep	—3,197
Indian Territory Illuminating Oil Co.'s Davis, Bowlegs	—3,129
Indian Territory Illuminating Oil Co.'s Livingston, Bowlegs	—3,004
Indian Territory Illuminating Oil Co.'s House, Little River	—3,108

These figures may be contrasted with the new wells.

	Feet
Independent Oil & Gas Co.'s Harris, 23-7-6	—3,309
Gypsy Oil Co.'s Dosh, 7-8-6	—3,319
Mid-Continent Petroleum Corp.'s Smith, 5-7-7	3,351

It will be observed that the other pool openers have been found with a minus datum on the Viola running between 3,100 and 3,200 feet, while the highest of the new Wilcox wells has a datum of 3,309 feet. This has no particular significance, but merely indicates another of the Seminole area's freakish performances. Had one of the discovery wells been drilled on the lows instead of the highs, or had one of them been dry, the entire picture as revealed by the field today might have been different.

WILDCAT OPERATIONS IN WEST TEXAS

(Continued from Page 39)

Corbett & Gill's No. 1 University ..... Top salt 855 ft.; smell gas 1,800 ft.; shut down 1,905 ft.

J. S. Cosden, Inc., No. 1 Paul Perner, SW cor. Sec. 36, Blk. 2, I. & G. N. Sur. ..... Drilling 220 ft.

Epeneaur et al's No. 1 Noelke, SW Sec. 30, Blk. GG, G. C. & S. F. Sur. ..... Show oil 828-29 ft.; shut down 1,055 ft.

C. A. Jones et al's No. 1 Powell ..... Top salt 1,050 ft.; drilling 2,200 ft.

James Kelly et al's (was Corbett & Gill's) No. 1 Todd, C NE Sec. 43, Blk. WX, G. C. & S. F. Sur. ..... Top salt 993 ft.; show oil 1,948 ft.; shut down 1,963 ft.

Van McPhail's No. 1 George Thompson ..... Location.

Van McPhail et al's No. 1 George Thompson ..... Location.

Magnolia Pet. Co.'s No. 2 Shannon ..... Show oil 2,385-90 and 2,992 ft.; total depth 4,100 ft.; fishing 20 joints 8-in. casing

Newman Oil Co.'s No. 1 B. C. Clark ..... Top salt 670 ft.; drilling 780 ft.

Bob Penn's No. 1 L. P. Powell ..... Rigging up.

William Shaffer et al's No. 1 University, C SE SE Sec. 9, Blk. 47, University Sur., elev. 2,344 ft. ..... Shut down 2,344 ft.

William Schaffer et al's No. 2 University, 1,350 ft. N and 2,610 ft. E of SW cor. Sec. 9, Blk. 47, University Land ..... Top salt 1,060 ft.; first oil show 2,190-96 ft.; second 2,225-29 ft.; 1 bailer oil in 10 hrs. at 2,590 ft.; shut down 2,635 ft.; brown lime.

Simmons Oil Co. et al's No. 1 H. M. Halff, NW cor. Sec. 69, Blk. 1, I. & G. N. ..... New location; moving in material.

W. W. Donnelly & Young's No. 1 Massey, Sec. 29, Blk. U-V ..... Drilling 150 ft.

McManmon Oil Co.'s No. 1 Blakeney ..... Shut down 3,485 ft.

World Oil Co.'s No. 1 Schneeman-B, Sec. 50, Blk. BB, G. C. & S. F. Sur. ..... Top salt 1,070 ft.; hole full sulphur water 2,210-15 ft.; drilling 2,255 ft.

World Oil Co.'s No. 1 Powell, Sec. 52, Blk. BB, G. C. & S. F. Sur. ..... Location.

Young & Donnellys' No. 1 J. M. Shannon, C Sec. 11, Blk. 9, D. & S. E. Sur. ..... 6,000,000 ft. gas at 1,662 ft.; shut down 1,676 ft.

CULBERSON COUNTY

Deep Rock Oil Co.'s No. 2 Kloh-Rumsey, Sec. 21, Blk. 29, T. & P. Sur., T-1 (NE of No. 1) ..... Shut down 210 ft.

James H. Gardner et al's No. 1 Radford, C SE Sec. 29, Blk. 62, Public School Land Sur. ..... Shut down at 585 ft. for 10-in.

Scott & Dittman's No. 1 Miller, SW cor. NW NE Sec. 1, School Blk. 97 ..... Spudded and shut down.

ECTOR COUNTY

J. S. Cosden, Inc., et al's No. 2 Connell-A, NW cor. NE Sec. 13, B-16, School Land, elev. 2,844 ft. ..... Top pay 3,471 ft.; shut down 3,515 ft.

J. S. Cosden et al's No. 3 G. W. Connell-A, SE cor. NE Sec. 13, Blk. B-16, elev. 2,849 ft. ..... Top pay 3,499 ft.; shut down 3,545 ft.; makes 50-bbl. flow every 2 weeks.

The Texas Company and Cosden's No. 1 W. E. Connell, SE cor. Sec. 24, Blk. B-16, School Land ..... Rigging up.

FISHER COUNTY

Cranfill & Reynolds' No. 1 J. A. Young, Sec. 208, B. B. B. & C. Sur. ..... Shut down 355 ft.

Ideal Oil Co.'s No. 1 Jameson, C SE Sec. 111, Blk. 1, H. & T. C. Sur. ..... Hole full salt water 2,345-2,520 ft.; shut down 3,304 ft.

Marland Oil Co. and Texon's No. 1 McCall, Sec. 108, Blk 3, H. & T. C. Sur. ..... Rig.

R. W. Raney's No. 2 Maberry, Sec. 56, Blk. 1, T. & P. Sur. ..... Shut down for orders 2,725 ft.

The Texas Company's No. 1 D. S. Stevens, C SW SE Sec. 79, Blk. 1, H. & T. C. Sur. ..... Drilling 250 ft.; new hole.

FOARD COUNTY

Clark et al's No. 1 Atkins ..... Lime 1,580-1,930 ft.; show gas 1,885 ft.; shut down for pipe 2,175 ft.; hole caving and full of water.

Fain-McGaha Oil Corp. et al's No. 1 Mathews ..... Total depth 2,550 ft.; plugged back to 1,506 ft.; preparing to swab oil sand 1,484-92 ft.

The Texas Company's No. 1 Watkins ..... Drilling 2,900 ft.

GAINES COUNTY

Westheimer & Daube's No. 1 Birge & Forbes Land Co., Sec. 308, Terrell County School Land ..... Cemented 8-in. 3,900 ft.; drilling 4,550 ft.

GARZA COUNTY

Emerald Oil Co.'s No. 1 D. Boren, NW cor. N ESec. 137, Blk. 5, H. & G. N. Sur. ..... Small show oil in gray lime 1,884-1,902 ft.; shut down 2,600 ft.; show oil and hole full water 2,420-60 ft.

Gulf Prod. Co.'s No. 1 E. P. Swenson-A, Sec. 67, Blk. 2, H. & G. N. Sur. ..... Rigging up.

GLASSCOCK COUNTY

California Co.'s No. 2 W. B. Currie, Lease 1, NE cor. NW Sec. 213, Blk. 29 ..... Drilling 670 ft.

HOWARD COUNTY

California Co.'s No. 1 Fisher Bros., SE SW NW Sec. 36, Blk. 33, T. & P. Sur., T-1-S ..... Shows oil 1,530-48 ft. and 1,562-64 ft.; hole full water 2,020-34 ft.; drilling 2,475 ft.

Coyle-Concord Oil Co.'s No. 1 Dora Roberts ..... Rotary rig; spudded and shut down.

Dixie Oil Co.'s No. 1 H. R. Clay ..... Total depth 1,963 ft.; rigging up to deepen.

W. W. Donnelly et al's No. 1 Martin, SE cor. Sec. 41, Blk. 33, T-2-N, T. & P. Sur., elev. 2,552 ft. ..... Drilling 3,135 ft.

Henshaw et al's No. 1 W. R. Settles, SW SE SW Sec. 135, Blk. 29 ..... Hole full sulphur water 1,335-80 ft.; total depth 1,900 ft.; rigging rotary to deepen.

Marland Oil Co.'s No. 1 Clay-E, NW NE SE Sec. 138, Blk. 29 ..... Pay 2,480-2,500 ft.; swabbed approx. 160 bbls.; total depth 2,790 ft.; rig burned down; rebuilding.

Marland Oil Co.'s No. 2 Clay-E ..... Rigging rotary.

Marland Oil Co.'s No. 1 Richardson, C NW Sec. 12, Blk. 32, T. & P. Sur., T-1-S ..... Total depth 495 ft.; pulled in rig; rebuilding.

Marland Oil Co. and Zoch's No. 1 Jones, Sec. 32, Blk. 27, T. & P. Sur., elev. 2,218 ft. ..... Shut down 500 ft.

Marland Oil Co.'s No. 1 A. M. Fisher, Sec. 1, Blk. 33, T. & P. Sur., T-2-S, elev. 2,730 ft. ..... Sulphur water 3,315-25 ft.; drilling 3,635 ft.; 1,800 ft. water in hole.

Mays, Nixon & Flowers' No. 1 W. J. Flowers ..... Rotary rig.

Miley and Marland Oil Co.'s No. 1 C. D. Read, C NW Sec. 12, Blk. 31, T. & P. Sur., T-1-N ..... Location.

Owens & Sloan's No. 2 Dora Roberts, SW cor. SE Sec. 136, Blk. 29 ..... Rotary derrick.

Peer Oil Corp.'s No. 1 Read, C NW Sec. 39, Blk. 30, T. & P. Sur., T-1-N ..... Drilling 2,335 ft.

Texon O. & L. Co. and Marland Oil Co.'s No. 1 Mrs. Connaly, NE cor. Sec. 15, Blk. 33, T. & P. Sur., T-1-S.. Top salt 1,425 ft.; hole full salt water 1,760-1,800 ft.; show oil 3,065 ft.; drilling 3,075 ft.

Texon and Marland's No. 1 W. R. Settles, Lease A, C SW Sec. 134, Blk. 29, W. & N. W. Sur ..... Swabbed 90 bbls. in 8½ hrs. 1,345-51 and 1,375-82 ft.

Vitek Oil Co.'s No. 1 H. R. Clay ..... Shut down 1,497 ft.

Bristow & Merrick's No. 4 A. J. Hooks ..... Rigging up rotary.

HUDSPETH COUNTY

American Land Co.'s (was Lockhart Bros.') No. 1 Gardner & Moseley, C SE Sec. 5, School Blk. 21 ..... Shut down 262 ft.

Western States Oil Co.'s (was Lockhart & Co.'s) No. 1 Moore, C SE Sec. 16, Blk. 71, T. & P. Sur., T-6 ..... Straightening hole 100 ft.

Western States Oil Co.'s No. 1 Gardner & Mosley, Sec. 12, Blk. 18 ..... Rigged up and shut down.

IRION COUNTY

Cash Dollar et al's No. 1 G. J. Bird, NE Sec. 16, Blk. 10, S. P. R. R. Sur. ..... Shut down 2,500 ft.

JEFF DAVIS COUNTY

J. K. Hughes Dev. Co.'s No. 2 Means ..... Drilling 1,785 ft.

Humble O. & R. Co.'s No. 2 Crecencio Flores, 1,130 ft. N and 850 ft. E of SW cor. Sec. 34, Blk. 58, T. & P. Sur., Twp. 8 ..... Drilling 1,975 ft., white lime.

JONES COUNTY

Midwest Expl. Co.'s (was Campbell et al's) No. 1 L. H. Herndon, Sec. 6, M. E. P. & P. Sur., elev. 1,832 ft. ... Top pay 2,498 ft.; deepening to 2,524 ft.; swabbed 115 bbls.; shut down for orders 3,009 ft.

Garland & Diamond's No. 1 E. D. Glynn, SE cor. Sec. 18, Deaf & Dumb Asylum Lands ..... Seven bailers salt water per hour at 1,465-1,500 ft.; hole full water 1,900-07 ft.; shut down 2,430 ft.

Gibson & Johnson's No. 1 R. J. Camp, S. M. Hale Sur. ... Total depth 456 ft.; running 12-in.

Phillips Pet. Co.'s No. 2 J. C. Mason ..... Drilling 2,300 ft.

W. G. Stough et al's No. 1 W. C. Bennett, Sec. 42, Orphan Asylum Sur. ..... Shut down 800 ft.

W. G. Stough and others' No. 1 J. P. Willis, J. C. Patterson Sur. No. 2 ..... Installing engine 1,740 ft.; shut down.

Stebbins Oil Co.'s No. 2 Higgs, SE cor. Sec. 30, W. T. Scott Sur. ..... Location.

Stebbins Oil and Sinclair O. & G. Co.'s No. 1 Scott ..... Drilling 1,620 ft.

Swensondale Oil Co.'s No. 1 Caton, SW NW Sec. 9, Deaf & Dumb Asylum Lands ..... Total depth 3,013 ft.; show oil 3,008-13 ft.; testing.

KNOX COUNTY

Deep Rock Oil Co.'s No. 1 Moore ..... Shut down 200 ft.

Deep Rock Oil Co.'s No. 1 Beavers, CSL Sec. 224, Blk. 44, elev. 1,441 ft. ..... Water sand 3,035-55 ft.; drilling 3,450 ft.; hole full of water.

Deep Rock Oil Co.'s No. 1 Big Four, 1,270 ft. S and 2,590 ft. W of NE cor. Sec. 31, Blk. 4 ..... Total depth 2,455 ft.; underreaming 8-in.

LOVING COUNTY

Lockhart Bros.' No. 1 fee, Sec. 85, Blk. 33, H. & T. C. Sur. ..... Location.

Owens & Sloan's No. 1 W. D. Johnson, C SE Sec. 20, Blk. 53, T-2, T. & P. Sur., elev. 2,934 ft. ..... Shut down 1,020 ft.; in litigation.

LYNN COUNTY

Elpo Oil Co.'s No. 1 Nevols, NW cor. Sec. 6, Blk. C-42, School Lands ..... Shut down 630 ft. (corrected)

MIDLAND COUNTY

Orbit Oil Co.'s No. 1 Moreland, C SE Sec. 17, Blk. 39, T. & P. Sur., T-1-S ..... Shut down 185 ft.

MITCHELL COUNTY

Paul Teas et al's No. 1 A. C. Mills, NW cor. C. A. O'Keefe Sub. 11, J. P. Smith Sur. ..... Location.

Robert Thraves' No. 1 C. Way, Sec. 91, Blk. 27, T. & P. Sur., T-1-N ..... Total depth 2,508 ft.; shut down.

B. E. Walter et al's No. 1 J. E. Dollen, NW cor. SW Sec. 11, Blk. 27, T. & P. Sur. ..... Shut down 2,955 ft.; hole full sulphur water.

NOLAN COUNTY

Herbert Oil Co.'s (was McClesky and others') No. 1 Pepper, SE cor. SW Sec. 29, Blk. 22, T. & P. Sur. ... Rigged up and shut down.

Reiter-Foster Oil Co.'s No. 1 T. E. Ariedge, Sec. 217, Blk. 1, H. & T. C. Sur. ..... Moving in rig.

Zweifel and others' No. 1 Longbotham, C SE Sec. 130, Blk. 1, H. & G. N. Sur. ..... Shut down 3,575 ft.

PECOS COUNTY

George Anderson et al's No. 1 McKenzie, C SE N half Sec. 6, Blk. 604 ..... Top salt, 1,010 ft; sulphur water, 2,230 ft. and 2,320-25 ft.; show oil 2,465-70 ft., lime; shut down.

George Anderson's No. 1 Sherbine Bros. ..... Rig on ground.

Cummings et al's No. 1 Blackstone & Slaughter ..... Spudded and shut down.

M. C. Dibble & Hale's No. 1 Bonebrake, Sec. 115, Blk. 8, H. & G. W. Sur., elev. 2,555 ft. ..... Cleaning out 640 ft.

Garland & Mott's No. 1 El Paso Cattle Loan Co., C NE Sec. 26, Blk. 126, T. & S. L. Sur., elev. 3,267 ft. ..... Hole full sulphur water 2,560 ft., shut down 3,500 ft.

George A. Henshaw et al's No. 1 B. T. Corder, C SW Sec. 74, Blk. 2, C. C. S. D. Sur. ..... Location.

George A. Henshaw, Jr., No. 1 Schimmel, Sec. 29, Blk. 144, T. & St. L. Sur., elev. 2,780 ft. ..... Drilling 700 ft.

Kirby Pet. Co. and Roxana's No. 1 W. W. Turney, NW cor. SW Sec. 11, Blk. 140, T. & St. L. Sur. ..... Hole full sulphur water 975-83 ft.; shut down 1,189 ft.

Mid-Kansas O. & G. Co.'s No. 1 Pryor & Wilson, NW cor. Sec. 3, Blk. 5, T. C. R. R. Sur. ..... New location.

Moody Oil Corp.'s No. 1 B. T. Corder, C SW Sec. 71, Blk. 2, C. C. S. D. Sur. ..... Location.

Olean Pet. Co.'s No. 1 G. N. Harral, C SW Sec. 82, Blk. R-3, G. C. & S. F. Sur., elev. 3,005 ft. ..... Shut down 2,555 ft.

Quinby Oil Co.'s No. 1 Townsite, Sec. 1, Blk. 267, Client Addn. Sur. Fort Stockton, elev. 2,980 ft. ..... Shut down 3,440 ft.

Quinby Oil Co.'s No. 2 Bennet, C NW 592, Blk. 105, G. C. & S. F. Sur., elev. 2,560 ft. ..... Shut down 1,457 ft.

Quinby Oil Co.'s No. 1 A. A. Gary, 660 ft. N and 1,320 ft. E SW cor. Sec. 593, Abst. 3,009, elev. 2,551 ft. .... Shut down 700 ft.

Transcontinental Oil Co.'s No. 1 Blackston & Slaughter, Sec. 29, Blk. 129, F. St. L. Sur., elev. 3,539 ft. ..... 250 ft. sulphur water in black sand 1,150-80 ft.; small show oil 1,510 ft.; show gas 1,540 ft.; show oil 2,080 ft.; drilling 2,775 ft.

World Oil Co.'s No. 1 Kloh, Sec. 47, Blk. 48, Twp. 8, T. P. R. R. Sur., elev. 2,810 ft. ..... Cellar.

World Oil Co.'s No. 1 Serf, SW cor. NE Sec. 16, Blk. 130, T. & St. L., elev. 3,245 ft. ..... Location.

Yates Pool, Pecos County

(* denotes test in extension territory.)

*Allsman & Bell's No. 4 River Bed, 325 ft. upstream from No. 3 ..... Total depth 600 ft.; 8-in. cem.

*Allsman & Bell's No. 5 River Bed, 312 ft. N of No. 4.... Location.

*Allsman & Bell's No. 11 River Bed, 150 ft. S & E of NE cor. Sec. 71, Blk. 1 ..... Piling on ground.

California Co.'s No. 2 Yates, Sec. 34, Blk. 194 ..... Rig standing.

California Co.'s No. 6 Yates, Sec. 34, Blk. 194 ..... Total depth 582 ft.; underreaming 12-in.

California Co.'s No. 7 Yates, Sec. 34, Blk. 194 ..... Drilling 470 ft.

California Co.'s No. 8 Yates, Sec. 34, Blk. 194 ..... Drilling 15 ft.

California Co.'s No. 3 Smith, Sec. 35, Blk. 194 ..... Drilling 1,480 ft.

*Douglas Oil Co. and Roxana's No. 1 J. T. Sellman, SW cor. Sec. 6, Blk. 194 ..... Sulphur water 1,518-19 ft.; shut down for orders.

*Day Bros. & McKnight's No. 1 Yates, NW cor. Sec. 58, Blk. 1 ..... Repairing machine 405 ft.

Gulf Prod. Co.'s No. 2 Smith, Sec. 28, Blk. 194 ..... Fishing tools 90 ft.

*Gulf Prod. Co.'s No. 1 Yates, Runnels Co. School Land.. Drilling 150 ft.

*Gulf Prod. Co.'s No. 2 Yates, Runnels Co. School Land.. Drilling 370 ft.

*Gulf Prod. Co.'s No. 3 Yates, Runnels Co. School Land.. Drilling 730 ft.

Humble O. & R. Co.'s No. 2 Smith, Sec. 36, Blk. 194 .... Drilling 1,360 ft.; small show at 1,355-60 ft.

*Humble O. & R. Co.'s No. 3 Smith, Sec. 36, Blk. 194 .... Fishing 825 ft.

*Humble O. & R. Co.'s No. 1 Smith-B, Sec. 101, Blk. 194 .. Fishing 265 ft.; 4 strings tools in hole.

*Humble O. & R. Co.'s No. 2 Smith-B, Sec. 101, Blk. 194 .. Drilling 50 ft.

*Mazda and Savoy's No. 2 Smith, Sec. 24, Blk. 194 ..... Location.

McMan and Marland's No. 7 Yates, Sec. 34½ ..... Drilling 690 ft.

*McMan and Marland's No. 8 Yates, Sec. 34½, Blk. 194 .. Total depth 1,289 ft.; running 6-in. 1,285 ft.

*McMan and Marland's No. 9 Yates, Sec. 34½, Blk. 194 .. Drilling 560 ft.

*McMan and Marland's No. 10 Yates, Sec. 34½, Blk. 194.. Bad hole 290 ft.

*Marland Oil Co.'s No. 4 Yates-A, Sec. 60, Blk. 1 ..... Drilling 1,025 ft.; flowed 1,015 bbls.

Mid-Kansas and Transcontinental's No. 8 Yates-A, Sec. 33½, Blk. 194 ..... Skidding rig.

Mid-Kansas and Transcontinental's No. 9 Yates-A, Sec. 33½, Blk. 194 (W of No. 2) ..... Drilling 375 ft.

Mid-Kansas and Transcontinental's No. 10 Yates-A, Sec. 33½, Blk. 194 (N of No. 1) ..... Digging cellar.

*Mid-Kansas and Transcontinental's No. 11 Yates-A, Sec. 33½, Blk. 194 (S of No. 1) ..... Rigging up.
*Mid-Kansas and Transcontinental's No. 5 Yates-B, Sec. 61, Blk. 1 ..... Total depth 875 ft.; 8-in. cem.; standing.
*Mid-Kansas and Transcontinental's No. 6 Yates-B, Sec. 61, Blk. 1 ..... Drilling 1,035 ft.; hard lime 998-1,005 ft.; soft lime 1,005-25 ft.; 55 bbls. per hour hard lime 1,025-35 ft.
Mid-Kansas and Transcontinental's No. 7 Yates-B, Sec. 61, Blk. 1 ..... Drilling 405 ft.
Mid-Kansas and Transcontinental's No. 8 Yates-B, Sec. 61, Blk. 1 ..... Total depth 300 ft.; run. 10-in.
Mid-Kansas and Transcontinental's No. 9 Yates-B, Sec. 61, Blk. 1 ..... Drilling 335 ft.
Mid-Kansas and Transcontinental's No. 10 Yates-B, Sec. 61, Blk. 1 ..... Clearing location.
Mid-Kansas and Transcontinental's No. 11 Yates-B ..... Location.
*Mid-Kansas and Transcontinental's No. 12 Yates-B ..... Location.
Mid-Kansas and Transcontinental's No. 2 Yates-C, Sec. 60, Blk. 1 ..... Drilling 645 ft.
Mid-Kansas and Transcontinental's No. 3 Yates-C, Sec. 60, Blk. 1 ..... Drilling 420 ft.
Mid-Kansas and Transcontinental's No. 4 Yates-C ..... Building road.
Mid-Kansas and Transcontinental's No. 5 Yates-C ..... Rigging up.
*Mid-Kansas and Transcontinental's No. 1 Yates-D, SW part Sec. 62, Blk. 1 ..... Total depth 1,242 ft.; flowed 2,260 bbls. in 20 hrs.; shut in for tankage; flowed 3,020 bbls. Saturday through one 4-in. line; drilling deeper.
Mid-Kansas and Transcontinental's No. 2 Yates-D, SW part Sec. 62, Blk. 1 ..... Digging cellar.
*Mid-Kansas and Transcontinental's No. 1 Yates-E, C W Sec. 59, Blk. 1 ..... Rigged up; waiting on electric motor.
Mid-Kansas and Transcontinental's No. 3 Smith-Taylor, Sec. 33, Blk. 194 ..... Total depth 893 ft.; run. 8-in.
Mid-Kansas and Transcontinental's No. 4 Smith-Taylor, Sec. 33, Blk. 194 ..... Drilling 25 ft.
Mid-Kansas and Transcontinental's No. 5 Smith-Taylor ..... Rigging up.
Mid-Kansas and Transcontinental's No. 6 Smith-Taylor ..... Moving in machine.
*Mid-Kansas and Transcontinental's No. 1 M. A. Smith, Sec. 31, Blk. 194 ..... Total depth 1,460 ft.; run. 6-in.
*Red Bank Oil Co.'s No. 2 Smith, Sec. 24, Blk. 194 ..... Drilling 1,015 ft.
*Roxana Pet. Corp.'s No. 2 Tippett, Sec. 102, Blk. 194 ..... Total depth 1,298 ft.; run. 6-in.
*Roxana Pet. Corp.'s No. 3 Tippett, Sec. 102, Blk. 194 ..... Drilling 85 ft.
Roxana Pet. Corp.'s No. 2 Smith, SE cor. SW Sec. 27, Blk 194 ..... Total depth 580 ft.; cleaning boiler.
Simms Oil Co's No. 3 Smith, Sec. 103, Blk. 194 ..... Rigging up.
Simms Oil Co.'s No. 4 Smith, Sec. 103, Blk. 194 ..... Digging cellar.
Kirby Pet. and Roxana's No. 1 Tippett ..... Fishing 220 ft.

PRESIDIO COUNTY

Headlock & Miller's No. 1 Tootle Est., Sec. 123, Blk. 3, D. & P. Sur., elev. 2,912 ft. ..... Salt water 2,610 ft.; total depth 3,003 ft.; shut down for orders.
Pinto Canyon Oil Co.'s No. 1 Fields, 1,760 ft S and E NW cor. Sec. 74, Blk. 2, D. & P. Sur. ..... Location.

REAGAN COUNTY

Henshaw & Camp's No. 1 University, Sec. 14, Blk. 49, University Land, elev. 2,772 ft. ..... 250 ft. sulphur water at 800 ft.; shut down 1,565 ft.; casing trouble.
Skelly Oil Co.'s No. 1 University, SW cor. Sec. 33, Blk. 8, University Land ..... Rigging up.
Texon O. & L. Co.'s No. 1-B University, Group 1 ..... Top pay 6,284 ft.; total depth 6,590 ft.; 3,800 ft. of 38.7 gravity oil in hole; underreaming.
White et al's No. 1 Shofner & Sterling, SE cor. NW Sec. 10, 2 m. N of Big Lake ..... Spudded and rigging up.

REEVES COUNTY

Exploration Co.'s No. 1 A. A. Kinney, 1,500 ft. W of NE cor. Sec. 26, Blk. C-18, Public School Land, elev. 2,847 ft. ..... Shut down for 15-in. 325 ft.
Grisham-Hunter Corp.'s No. 1 Rathge & Connor ..... Location.
David R. Thompson's No. 1 A. A. Eddins ..... Drilling 1,875 ft.
World Oil Co.'s No. 1 Biggs, C SE Sec. 65, Blk. 112, Public School Land Sur., elev. 3,068 ft. ..... Shut down 1,610 ft.
World Oil Co.'s No. 1 Duff, elev. 2,753 ft. ..... Top Delaware lime 4,185 ft.; drilling 4,215 ft.

RUNNELS COUNTY

Empire G. & F. Co.'s No. 1 C. C. Clay ..... Building rig.
Gibson & Johnson's No. 1 Harris Est., Juliana Voske Cabrera Sur. ..... Location.
Gibson & Johnson's No. 1 H. P. Serratt, C SE NW Sec. 150, E. T. R. R. Sur. ..... Location.
Kennedy et al's No. 1 J. E. Tally ..... Drilling 1,250 ft.
May et al's No. 1 J. M. Schneider, John Wall Sur. ..... Drilling 850 ft.
Miles Oil Co.'s No. 1 Charles Ray, Sec. 21, T. & N. O. Sur. ..... Cellar.
Miles Oil Co.'s No. 1 L. S. Lawhon, NE cor. Sec. 68 ..... Show gas 960-80 ft.; total depth 1,885 ft.; cleaning out.
Noble O. & G. Co.'s No. 1 Sims, Sec. 12, J. J. McHenry Sur. ..... Hole full sulphur water 2,710-20 ft.; shut down 2,720 ft.
Swensondale Oil Co.'s No. 1 E. A. Werner ..... Drilling 950 ft.
Owenwood Oil Corp.'s No. 1 H. B. Fowler ..... Location.

SCHLEICHER COUNTY

Beavers & Leath et al's No. 1 J. A. and W. T. Whitten, C NW Sec. 35, Blk. 11, T. O. Sur. ..... Shut down 400 ft.
Thomas Grey et al's No. 1 Ball Robinson, C NW Sec. 25, Blk. M, G. H. & S. A. Sur. ..... Sulphur water 2,125 ft.; hole full water 2,160-80 ft. and 2,935 ft.; shut down for orders 3,004 ft.

SCURRY COUNTY

J. B. Mims et al's No. 1 J. J. Koonsman, Sec. 220, Blk. 2, H. & T. C. Sur. ..... Location.

STERLING COUNTY

Orr et al's No. 1 Neal Reed, CNL Sec. 15, Blk. 30, W. & N. W. Sur. ..... Hole full water 2,625-90 ft.; set 10-in. 2,700 ft.; drilling 2,830 ft.

STONEWALL COUNTY

Peer Oil Corp. and Producers Oil Co.'s (was J. P. Johnson's) No. 1 R. P. Morrow ..... Hole full water 2,625-90 ft.; set 10-in. 2,700 ft.; drilling 2,830 ft.

TAYLOR COUNTY

A. J. Brown et al's No. 1 Hensley, NE cor. Sec. 5, Blk. 4, S. P. R. R. Sur. ..... Total depth 2,235 ft.; rebuilding rig.
Dorning & Perrine's No. 1 J. A. Hammer, C N 100 acres, Sec. 23, Blk. 19, T. & P. Sur., elev. 1,904 ft. ..... Shut down 455 ft.
Gilbert Johnson and Day Bros.' No. 1 C. M. Brown, Sec. 1, Blk. 6, T. & P. Sur. ..... Spudded and shut down; installing engine.
Owen & Sloan's No. 1 Lattimer, Sec. 14, Blk. 9, T. & P. Sur. ..... Shut down 2,605 ft.
Roeser & Pendleton's No. 1 Sam Hutman, C W half NW Sec. 64, Blk. 5, T. & P. Sur. ..... Water sand 2,222 ft.; shut down 2,693 ft. to repair rig.

TERRELL COUNTY

Milham Exploration Co.'s No. 1 Bassett, CNL Sec. 99, Blk. Y, W. H. Robertson Sur. ..... Rig on ground.

TERRY COUNTY

Kingsland O. & P. Co.'s No. 1 Brownsfield, C NW SW SW Sec. 7, Blk. 1-A, E. L. R. R. Sur. ..... Slight show gas 2,230 ft.; shut down 3,310 ft.

TOM GREEN COUNTY

George Amery's No. 1 Wilkey, C SW Sec. 3, B. A. L. Sur. ..... Location.
Cox et al's No. 1 Llano ..... Total depth 470 ft.; underreaming casing.
Fitzgerald et al's No. 1 Bennett ..... Shut down 1,385 ft.
Mariand Oil Co.'s No. 1 J. W. Johnson, C SE, Sec. 6, R. B. Sanderson Sur. ..... Drilling 1,425 ft.
Mariand Oil Co.'s No. 1 J. W. Johnson-A ..... Drilling 35 ft., cable tools.
Tulsa Oil Co.'s No. 1 Adams, C SW Sec. 163, Blk. 11, S. P. R. R. Sur. ..... Shut down 735 ft.

UPTON COUNTY

Eastland Oil Co. and Brandon & McCamey's No. 1 Union Land, Sec. 34, Blk. 1, M. K. T. Sur. ..... Top salt 570 ft.; top lime 2,006 ft.; drilling 2,015 ft.
Mark Curtis et al's (was Hultz et al's) No. 2 Giddings, 5,336 ft. S and 6,678 ft. E of NW cor. Throckmorton Co. School Land, League 1, elev. 2,757 ft ..... Spudded and shut down.
Skelly Oil Co.'s No. 2 J. F. Lane, SW cor. SE SE Sec. 3, G. C. & S. F. Sur. ..... New location; cellar.
Southern C. O. P. Co.'s No. 1 C. W. Hobbs ..... Rigging up.
The Texas Company and Cordova Union's No. 1 Union Land, Sec. 23, Blk. 35, H. & T. C. ..... Top salt 580 ft.; drilling 755 ft.
R. H. Paxton's No. 1 J. T. Lane, Sec. 2, G. C. & S. F. on Orient right of way ..... Drilling 1,860 ft.
Tulsa Drlg. Co.'s No. 1 W. A. Chaney, Sec. 18, Blk. 3, M. K. T. Sur. ..... New location; shut down 300 ft.
Wise & Jackson's No 1 J. H. Porter, SW cor. SW SW Sec. 184, Blk. E, elev. 2,592 ft. ..... Top pay 3,419 ft.; total depth 3,517 ft., gray lime; shut down.

VAL VERDE COUNTY

A. Blume et al's No. 1 Moore Est., Sec. 183, J. Mitchell Sur., elev. 953 ft. ..... Shut down 3,000 ft.
Curso Williams' No. 1 Holman, NE NE Sec. 5, Blk. N, G. H. & S. A. Sur. ..... Shut down 2,940 ft.
Douglas Oil Co.'s No. 1 Sellars, C SE Sec. 52, Blk. A, I. & G. N. Sur. ..... Drilling 3,855 ft.
East Del Rio Oil Co.'s No. 1 Russell, SE cor. Sec. 183, Del Rio Town Sur., elev. 941 ft. ..... Total depth 3,190 ft.; shut down.
Magnolia Pet. Co.'s No. 1 Whitehead, Sec. 81, D. G. C. & S. F. Sur., elev. 1,770 ft. ..... Drilling 4,565 ft.
Independent Operators' No. 1 Whitehad, SE SE Sec. 30, Blk. 4, I. & G. N. Sur., elev. 1,175 ft. ..... Shut down 3,900 ft.
O. O. Owens' No. 1 Mills, Sec. 128, Blk. 1, I. & G. N. Sur., elev. 2,130 ft. ..... Gas sand 2,491-2,520 ft.; tested 125,750 ft. gas; reset 8-in. 2,511 ft.; shut down 2,680 ft. (corrected).

WINKLER COUNTY

Amerada Pet. Corp.'s No. 1 J. B. Walton, SW cor. NW Sec. 48, Blk. 26, elev. 2,833 ft. ..... Top salt 1,086 ft.; 2,500,000 ft. gas 1,700-08 ft.; killed gas with 3¼ tons baroid; drilling 2,320 ft. in lime and anhydrite.
Atlantic O. P. Co.'s No. 1 Ida Hendrick, SE cor. W half NE Sec. 44, Blk. 26 ..... Total depth 2,727 ft.; cementing 8-in.
Atlantic O. P. Co.'s No. 1 Grisham-Hunter, Sec. 34, Blk. B-5, elev. 2,823 ft. ..... Drilling 2,705 ft.
Atlantic O. P. Co.'s No. 2 Grisham-Hunter ..... Cem. 8-in. 2,514 ft.
Atlantic O. P. Co.'s No. 1 Grisham-Hunter-C (was Lemar) ..... Total depth 2,130 ft.; cemented 8-in.; will drill in.
Atlantic O. P. Co.'s No. 1 Ida Hendrick-D ..... Shut down for water 297 ft.
Atlantic O. P. Co.'s No. 1 Grisham-Hunter-E ..... Drilling 540 ft.
Magnolia Pet. Co.'s (was G. M. Church et al's) No. 1 Ida Hendrick, Sec. 29, Blk. B-5 ..... Drilling plug 2,430 ft.
Magnolia Pet. Co.'s (was G. M. Church et al's) No. 2 Ida Hendrick ..... Drilling 1,135 ft.
Cranfill Bros. and California Co.'s No. 1 M. J. Bashara, at cor. Secs. 10, 11, 22 and 23, School Blk. 77 ..... Total depth 3,135 ft.; cored hard sand; no show oil.
Cranfill & Reynolds' No. 2 Ida Hendrick, C SE NW NW Sec. 28, Blk. B-5 ..... Standardizing 2,468 ft. and bailing casing.
Cranfill & Reynolds' No. 1 Grisham-Hunter-A, Sec. 35, Blk. B-5 ..... Drilling 200 ft.
Eastland Oil Co. and Arnold's No. 1, Sec. 35, Blk. B-5 ..... Drilling 2,340 ft.
Gulf Prod. Co.'s No. 6 T. G. Hendrick, NE cor. NW Sec. 34 ..... Total depth 2,556 ft.; cleaning out.
Gulf Prod. Co.'s No. 7 T. G. Hendrick, SE SW NW Sec. 34, Blk. B15 ..... Top gray lime 2,768 ft.; top pay 2,790 ft.; drilling 2,798 ft.
Humble O. & R. Co.'s No. 1 T. G. Hendrick, NW cor. NE Sec. 34, Blk. B-5, Public School Land, elev. 2,816 ft. ..... Total depth 2,763 ft.; fished out one bit, drilling by another.
Humble O. & R. Co.'s No. 2 T. G. Hendrick, SE cor. NE Sec. 34, Blk. B-5, elev. 2,824 ft. ..... 75,000,000 ft. gas 2,560 ft.; shut down; started spraying oil.
Humble O. & R. Co.'s No. 3 Hendrick, Sec. 34, Blk. B-5 ..... 5,000,000 ft. gas from 2,194 ft.; total depth 2,370 ft.; fishing drill stem.
Humble O. & R. Co.'s No. 4 Hendrick, Sec. 34 ..... 5,000,000 ft. gas from 2,252 ft.; drilling 2,667 ft.; 15,000,000 ft. gas.
Humble O. & R. Co.'s No. 5 Hendrick, Sec. 34, Blk. B-5 .. Location.
Humble O. & R. Co.'s No. 1 Ida Hendrick-B ..... Total depth 264 ft.; cem. 12-in.
Humble O. & R. Co.'s No. 2 Ida Hendrick-B ..... Rig on ground.
Humble O. & R. Co.'s No. 3 Ida Hendrick-B ..... Location.
Independent O. P. Co. & G. Co.'s No. 1 J. S. Howe-D, NE cor. W half SE Sec. 44, Blk. 26 ..... Total depth 2,729 ft.; cem. 8-in.
Independent O. & G. Co.'s No. 1 Hendricks-A, elev. 2,816 ft. ..... 250,000 ft. gas 2,555-75 ft.; 18 bbls. water 2,770-75 ft. and show oil; 200 ft. oil in hole; shut down 2,845 ft.
Independent O. & G. Co.'s No. 2 Hendricks-A, elev. 2,823 ft. ..... Show gas 2,620 ft.; shut down 2,740 ft.
Independent O. & G. Co.'s No. 1 Vardeman-B ..... Rigging up.
Independent O. & G. Co.'s No. 2 Vardeman-B ..... Cellar.
Liner Drlg. Co.'s No. 1 Seth-Campbell, NE cor. Sec. 2, Blk B-5 ..... Shut down 450 ft.
Landreth Prod. Corp.'s No. 1 Hendrick-A, SE cor. SW Sec. 29, Blk. B-5 ..... Top lime 2,663 ft.; show oil 2,688 ft. and 2,875 ft.; 1,400 ft. oil 2,925 ft.; 200 ft. sulphur water 3,009-13 ft.; water exhausted later.
Landreth and Roxana's No. 2 Ida Hendrick-A, Sec. 29, Blk. B-5 ..... Part rigged and shut down.
Landreth and Roxana's No. 3 Ida Hendrick-A, Sec. 29, Blk. B-5 ..... Part rigged and shut down.
Landreth and Roxana's No. 4 Ida Hendrick-A ..... Drilling 1,310 ft.
Murchison Oil Co. et al's (was Mariand Oil Co.'s) No. 1 Grisham-Hunter-B ..... Location.
Murchison Oil Co. et al's (was Mariand Oil Co.'s) No. 2 Grisham-Hunter-B ..... Drilling 2,765 ft.
Murchison Oil Co. et al's (was Mariand Oil Co.'s) No. 3 Grisham-Hunter-B ..... Showing oil 2,630 ft.; total depth 2,427 ft.; tore down standard rig.
Murchison Oil Co. et al's (was Mariand Oil Co.'s) No. 4 Grisham-Hunter-B ..... Drilling 200 ft.
Mining & Engineering Co.'s No. 1 T. G. Hendrick, Sec. 10, Blk. B-12 ..... Rig.
R. S. Matthews et al's No. 1 State, C Sec. 7, Blk. A-57, Public School Land Sur., elev. 3,128 ft. ..... Top salt 1,623 ft.; drilling 3,730 ft.
Murchison Oil Co. and Cranfill Bros.' No. 2 Grisham-Hunter ..... Location.
Murchison Oil Co. and Cranfill Bros.' No. 3 Grisham-Hunter ..... Show gas 2,449-68 ft.; show oil 2,622 ft.; killed gas; total depth 2,696 ft.; shot 300 qts. at 2,563-83 ft.; flowed 109 bbls. in 24 hrs.
Murchison Oil Co. and Cranfill Bros.' No. 4 Grisham-Hunter ..... Location.
Pure Oil Co.'s No. 2 Hendrick, elev. 2,827 ..... Top salt 1,518 ft.; top lime 2,390 ft.; made 20-bbl. head at 2,635-43 ft.; 1,200 ft. oil in hole 2,657-80 ft.; shut down.
Pure Oil Co.'s No. 3 Hendrick, NE cor. SW Sec. 41, Blk. B-5 ..... Top salt 1,497 ft.; drilling 1,690 ft.
Pure Oil Co.'s No. 1 Hendrick-B, NE cor. SE Sec. 34, Blk. B-5 ..... Show gas 2,350-60 ft.; show oil 2,380 ft.; 15,000,000 ft. gas at 2,490 ft.; more gas 2,564 ft.; shut down for orders 2,700 ft.

Pure Oil Co.'s No. 2 Hendrick-B	Top lime 2,387 ft.; standardized 2,387 ft. and shut down.
Pure Oil Co.'s No. 3 Hendrick-B	Cem. 8-in. 2,438 ft and shut down.
Pure Oil Co.'s No. 4 Hendrick-B	Location.
Republic Prod. Co.'s No. 1 Grisham-Hunter-A, NW cor. E half SW Sec. 45, School Block 26	Top lime 2,125 ft.; some gas; drilling 2,690 ft. in hard, tight lime.
Republic Prod. Co.'s No. 1-A Grisham-Hunter-B, SW cor. E half SE Sec. 41, Blk. B-5	Drilling 535 ft.
Republic Prod. Co.'s No. 2 Grisham-Hunter-B	Cem. 2,011 ft.
Roxana Pet. Corp.'s No. 1 Grisham-Hunter-A, SW cor. E half NW Sec. 45, School Blk. 26	Top lime 2,428 ft.; little gas; show oil and gas 2,570 ft.; increase gas at 2,597 ft.; spraying oil 2,760-65 ft.; 40,000,000 ft. gas 2,800-01 ft.; blew tools up in hole.
Roxana Pet. Corp.'s No. 1 Grisham-Hunter-B, SW cor. S half SE Sec. 29, Blk. B-5	Top lime 2,657 ft.; show oil and gas 2,630 ft.; shut down 3,002 ft.
Roxana Pet. Corp.'s No. 2 Grisham-Hunter-B, NW cor. S half SE Sec. 29, Blk. B-5	Pits dug; moved off material.
Roxana Pet. Corp.'s No. 1 Grisham-Hunter-C	Standardized 2,492 ft.; bailing.
Roxana Pet. Corp.'s No. 1 Grisham-Hunter-D, SW cor. S half NE Sec. 41, Blk. B-5	Drilling 1,370 ft.
Roxana Pet. Corp.'s No. 2 Grisham-Hunter-D	Location.
Sheldon & Burden's No. 1 Ida Hendrick, SW cor. SE Sec. 28, Blk. B-5 (10-a. tract)	Rigging rotary.
Southern C. O. P. Co.'s No. 3 T-67 Hendrick-C, SE cor. NE Sec. 33, Blk. B-5, elev. 2,816 ft.	Total depth 2,735 ft.; shut down orders.
Southern C. O. P. Co.'s No. 4 T-67 Hendrick-C, elev. 2,810 ft.	Shut down 2,740 ft.
Southern C. O. P. Co.'s No. 2 Ida Hendrick T-88-B	Total depth 2,659 ft.; cem. 6-in. in lime; tearing down rotary.
Southern C. O. P. Co.'s No. 1-F Hendrick, Sec. 33, Blk. B-5, NE cor. SE	Show oil 2,653 ft.; 2,000,000 ft. gas and show oil 2,724 ft.; connecting up.
Southern C. O. P. Co.'s No. 1 T-89 Grisham-Hunter-A, CWL NE SW Sec. 35, Blk. B-5, elev. 2,816 ft.	Top salt, 1,219 ft; top lime, 2,298 ft.; 10,000,000 ft. gas 2,473-75 ft.; 3,000,000-ft. increase at 2,485 ft.; drilling 2,612 ft.
Texon O. & L. Co.'s No. 2 Grisham-Hunter-A	5,000,000 ft. gas 2,260-2,500 ft.; drilling 2,590 ft., lime.
Texon O. & L. Co.'s No. 3 Grisham-Hunter-A, NW cor. W half SE Sec. 41, Blk. B-5	Drilling 475 ft.
Texon O. & L. Co.'s No. 1 Grisham-Hunter-B, NW cor. W half SW Sec. 45, School Blk. 26	Shut down 1,150 ft.
Texon O. & L. Co.'s No. 2 Grisham-Hunter-B	Spudded and shut down.
White Eagle O. & R. Co.'s (was Gibson & Johnson's) No. 1 P. A. Lock, 1,320 ft. W of NE cor. Sec. 30, Blk. 74, NW of discovery well, elev. 2,830 ft.	Fishing tools and bailer 3,360 ft
Southern C. O. P. Co.'s No. 1 Ida Hendrick 3-T-67-A, C SW NW NE Sec. 4, Blk. B-12, elev. 2,784 ft.	Top lime 2,638 ft.; slight show oil 3,000-08 ft.; filled up 1,500 ft. sulphur water at 3,055-72 ft.; plugged back to 3,050 ft. and shut off water; tore down tools
Southern C. O. P. Co.'s No. 2 Ida Hendrick 3-T-67-A	Standing cemented 2,646 ft.; tore down rotary.
Southern C. O. P. Co.'s No. 1 T-67 Hendrick-B, NE cor. SE Sec. 24, Blk. 26	Top salt 2,210 ft.; top lime 2,445 ft.; total depth 2,648 ft.; rigging cable tools.
Tidal Oil Co.'s No. 1 J. W. Amburgey, C Sec. 24, Blk. B-7, Public School Land, elev. 2,992 ft.	Top salt 1,220 ft.; ¼ bailer sulphur water per hr. 4,308 ft.; 2 bailers hr. 4,440 ft.; drilling 4,710 ft.
Southern C. O. P. Co.'s No. 1 Hendrick 3-T-68-A, SW cor. W half NW Sec. 35, Blk. B-5	Top salt 1,365 ft.; top lime 2,301 ft.; standardized 2,313 ft.; bailing hole.
Southern C. O. P. Co.'s No. 2 Hendrick 3-T-68-A	Standardized 2,288 ft. and shut down.
Southern C. O. P. Co.'s No. 3 Hendrick 3-T-68-A	Top salt 1,265 ft.; drilling 1,700 ft
Southern C. O. P. Co.'s No. 2 T-88 Hendrick-C, Sec. 28, Blk. B-5	Drilling 1,345 ft.
Southern C. O. P. Co.'s No. 1 T-88 Ida Hendrick-C, NW cor. Sec. 28, Blk. B-5	Drilling 2,545 ft.
Southern C. O. P. Co.'s No. 3 Ida Hendrick, T-88-C	Drilling 1,070 ft.
Southern C. O. P. Co.'s No. 4 Ida Hendrick, T-88-C	Location.
Southern C. O. P. Co.'s No. 5 Ida Hendrick, T-88-C	Building derrick.
Southern C. O. P. Co.'s No. 6 Ida Hendrick, T-88-C	Rigging up rotary.
Turman & Maxwell's No. 1 Ida Hendrick	Drilling 2,520 ft.
Turman & Maxwell's No. 2 Ida Hendrick	Drilling 840 ft.
Southern C. O. P. Co.'s No. 1 Ida Hendrick, T-88-G, SW SE Sec. 28, Blk. B-5	Moving in material.

MID-CONTINENT REFINERY RUNS HIGHER

(Continued from Page 30)

REFINERY OPERATIONS IN NORTH CENTRAL TEXAS
(Plants which have been in operation during the past year.)

Name and Location—	Daily Capacity	Runs Nov. 1	Runs Oct. 1
Alamo Refining Co., Isom	1,600	1,600	1,200
Amarillo Producers & Refiners Corp., Isom	2,000	1,000	1,000
Amarillo Refining Co., Amarillo	5,000	3,000	3,000
American Refining Co., Wichita Falls	7,000	2,700	2,500
Anderson & Prichard Oil Corp. (Western), Wichita Falls	1,500	Shut down	Shut down
Col-Tex Refining Co., Colorado	10,000	6,500	5,500
Continental Oil Co., Wichita Falls	6,000	4,000	3,600
Dale Oil & Refining Co., Electra	2,500	1,750	1,750
Empire Oil & Refining Co., Gainesville	5,000	4,000	4,000
Falls Refining Co., Wichita Falls	1,500	1,000	1,000
Gulf Refining Co., Fort Worth	10,000	7,500	7,000
Hagaman Refining Co., Tiffin	2,000	100	100
Humble Oil & Refining Co., Burkburnett	4,000	Shut down	Shut down
Humble Oil & Refining Co., McCamey	10,000	10,000	10,000
Iowa Park Producing & Refining Co., Iowa Park	2,500	900	1,200
Kent-Middleton Refining Co., Angus	4,000	1,400	1,400
Kent-Middleton Refining Co., Minerva	2,500	1,200	1,200
Macmillan Petroleum Co., Isom	4,500	4,100	2,500
Magnolia Petroleum Co., Fort Worth	12,000	5,500	5,300
Magnolia Petroleum Co., Corsicana	4,000	5,200	3,000
Noble Oil & Gas Co., Burkburnett	4,500	2,800	2,800
Olney Oil & Refining Co., Olney	1,500	1,500	1,800
Oriental Refining Co., Dallas	5,000	Shut down	Shut down
*Oriental Refining Co. (Trinity), Dallas	5,000	3,500	2,500
Orient Petroleum Co., Wichita Falls	4,000	900	1,200
Panhandle Refining Co., Wichita Falls	4,000	3,800	3,800
Primrose Refining Co., Wichita Falls	1,500	Shut down	Shut down
Primtex Refining Co., Grand Prairie	2,500	350	Shut down
San Angelo Refining Co., San Angelo	1,500	900	1,500
Simms Oil Co., Dallas	5,000	4,100	4,000
Star Refining & Producing Co., Fort Worth	1,800	Shut down	250
Swastika Refining Co., Muenster	1,000	350	400
The Texas Company, Dallas	15,000	10,000	10,000
Tidal Western Refining Co., Burkburnett	3,000	2,000	2,000
Texas Pacific Coal & Oil Co., Fort Worth	6,000	2,600	2,600
Transcontinental Oil Co., Fort Worth	5,000	3,000	3,400
Waggoner Refining Co., Electra	3,400	2,700	2,700
White Eagle Oil & Refining Co., Fort Worth	4,000	Shut down	Shut down
Valley Refining Co., Wichita Falls	2,500	2,000	1,600
Total	179,050	99,950	95,600

*Operated by Magnolia Petroleum Co.

WALSH & WEIDNER

FORGED STEEL SECTIONAL HEADER WATER TUBE BOILERS

In units up to 3000 H.P. and pressures up to 1400 lbs. per square inch.

STABOLTED BOX HEADER WATER TUBE BOILERS

With special Forged Steel Inside Fitting Oval Handhole Plates. Boilers built for pressures up to 250 lbs. per square inch.

FOUR DRUM VERTICAL BENT TUBE WATER TUBE BOILERS

In units up to 2500 H.P. and pressures up to 400 lbs. per square inch.

WATER WALLS

PATENTED WATER BOTTOMS

For all makes of Boilers and all Types of Furnaces

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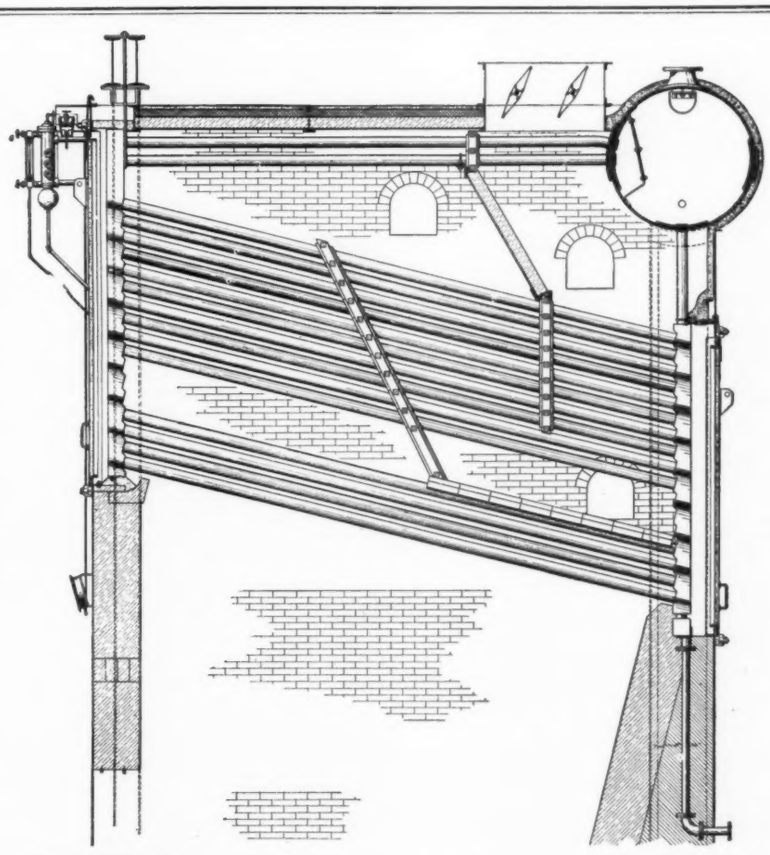
STEEL PLATE CONSTRUCTIONS UP TO 3 INCHES THICK

THE WALSH & WEIDNER BOILER COMPANY
Chattanooga, Tenn.



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Technical Questions Answered

BY CHARLES K. FRANCIS, PH.D., TECHNICAL EDITOR

This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with the marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible so as to assure a satisfactory answer.

All inquiries should be signed and if other than the given initials are to be used please indicate the desired. letters.

Questions involving patented processes, intricate formulas and calculations and estimates of costs, for obvious reasons, cannot be answered. The replies will appear on this page within a reasonable time.

CORROSIVE LUBRICATING OIL

Is there any difference in the corrosive action of lubricating oil because of the kind of acid, that is whether it is due to natural acids in the crude oil or to acid introduced in the refining process?—P. F. H.

We have evidence that the petroleum acids of the naphthenic type do not cause appreciable corrosion of the ordinary metals during the normal life of the oil in service but that mere traces of the inorganic acids are dangerous. There are a few crude oils which contain sulphuric acid; so the presence of this acid, for example, in a lubricating oil could not be positive evidence that it was an accidental impurity which entered the lubricating stock through treatment with this acid. However, there can be little question that when sulphuric acid is found in a lubricating oil, it is an indication of faulty refining.

You will be interested in the discussion of corrosive lubricating oils by H. J. Young, before the Institution of Petroleum Technologists, which appears on another page. The proposal of a test which will detect corrosive oils is set forth by Mr. Young, which he designates a Direct-Oil-Corrosion Test.

The test is performed by means of an apparatus whereby warm oil is run continuously over warm steel, white metal, brass, copper, or any other metal. The temperature employed by the author was 90 degrees Centigrade, but may be any temperature demanded in any particular case. In order to reproduce the conditions of the pins and journals, slabs were cut from similar steel and one-half of their surfaces "white-metalled" with bearing metal of the same make and quality as that used on the engines. It was possible, therefore, in one and the same test, to observe the effects of the oil upon the steel, the bearing metal, and at the point where the two materials met—as a matter of fact, over many experiments, there has been no definite indication of increased activity at this junction.

In the case of oils from internal combustion engines of all types it would appear that the corrosive deterioration of the contamination is accumulative. For this reason the specimens from the test need to be examined under a microscope.

In summarizing his paper the author stated that by this test as little as 0.002 per cent H_2SO_4 could be detected, and the test was equally sensitive to minute amounts of sea water, alkalis, sulphates, and so on. The alkalis so readily affect white metal that an oil cleaned by alkali will attack white metal even when that oil has been washed three or four times with water. The test thus affords a means of testing the efficiency of any cleaning process.

Oils were taken from the lubrication systems of motor ships and the results showed, said the author, that a sulphate value of more than 0.05 per cent was an indication that the oil was dangerous to use. Corrosive powers were active down to as little as 0.012 per cent sulphate value.

The following is the sulphate value test referred to above:

One hundred c.c. sample in 600 c.c. beaker. Add 20 c.c. caustic potash solution (210 grams in 300 c.c. water.) Keep at just below 100 degrees Centigrade for three hours with air bubbling through meanwhile. Add 90 c.c. hot water. Transfer to 500 c.c. separating funnel and shake vigorously. When separated, tap off 70 c.c. of the alkaline solution into a 200 c.c. beaker, acidify with 20 c.c. strong hydrochloric acid, boil, filter and treat with borium chloride solution in the usual manner.

WATERS IN OIL FORMATIONS

Will you be good enough to give me some information about the methods that may be used for determining the kind of water found at different levels when drilling for oil? I don't know much about chemistry so would like this in ordinary terms.—H. C.

We are not familiar with any methods for the identification or classification of waters other than those based on the chemical composition. However, an explanation of these may be made without the use of complicated descriptions or the use of many technical terms.

The source of water has been defined in a general way as top, bottom and edge waters. Top waters are those found above the producing horizon; bottom waters are found below and edge waters in contact with production. Production is meant to include either oil or gas.

The system used for the statement of the analyses of waters which are to form the foundation for any scheme of identification is important. It is a common practice to determine the quantity of elements present, such as calcium, sodium, magnesium, etc., also certain substances which combine with these; for example, cloride, sulphate and carbonate. After these substances have been detected in a water and the quantity determined, then an effort is made to calculate the quantities of the substances which may be formed by combination. This scheme is considered to be not so reliable as when the results are stated according to direct analysis.

An example from Bureau of Mines Technical Paper 404, Identification of Oil Field Waters, by C. E. Reistle, Jr., will serve to illustrate the method.

	Parts per Million				
Solids—	Top Water	Intrmd. Water	Bottom Water	Edge Water	Water Causing Trouble
Calcium	7,050	13,790	15,532	26,225	9,877
Magnesium	1,440	804	.....	2,847	960
Sodium	41,010	51,300	58,150	72,700	46,723
Chloride	84,370	115,921	116,163	166,850	94,968
Sulphate	441	.....	211	.....	364
Bicarbonate	.....	.....	1,580	.....	526
Total solids	134,311	181,815	191,636	268,622	153,418

The analyses show that the unknown water contains bicarbonates, which are present in the bottom water only; however, dilution by another water is indicated by the quantity. Two analyses besides that of the unknown show sulphates. As the unknown contains more sulphates than the bottom water, the mixing water must contain more. Besides the bottom water there is only one other containing sulphates, that is the top water. Consequently, the trouble water must be a mixture of top and bottom water.

Frequently there will be found in one water a substance or substances not found in others, and in such cases identification is simplified. Examples of this include hydrogen sulphide, bromine, iodine, barium, strontium, copper, etc.

TESTING BURNED FULLERS EARTH WITH BLUE DYE

Information is desired concerning the method for testing the filtering value, for the color of lubricating oil, of clay by means of a blue dye. Can you furnish details of this method or a reference about it?—L. R.W.

You probably have in mind the method which has been proposed by Hill, Nichols and Cowles, Jr., a description of which was published in The Oil and Gas Journal, page 120, August 6, 1925, from which the details given below have been taken. It should be noted that this test is to be used with burned clay.

The general method is to shake a definite weight of the clay with a definite volume of a standard solution of methylene blue under certain standard conditions, remove the suspended clay by centrifuging, and to compare the resultant partially discolorized solution with standards made up from the original methylene blue solution by dilution with water in various proportions and numbered according to the percentage of the original solution in the dilution. A reported number, therefore, represents the percentage of dye in the original solution not absorbed by the clay. A concentration of about 0.25 gram dye per liter was found convenient for the original solution.

A solution of a reagent grade of methylene blue is made up in a strength of approximately 0.25 gram per liter in approximately 0.1 N sulphuric acid. The solution is adjusted so that a dilution with nine parts of water compared in a 113 cubic centimeter (4-oz.) oil sample matches a standard cobalt solution in a similar container in intensity of color. The standard cobalt solution is a solution of cobaltous chloride in 95 per cent alcohol containing 2.5 volume per cent of 32 per cent hydrochloric acid and 0.4700 gram cobalt per 100 cubic centimeters and 15.6 degrees Centigrade (60 degrees Fahrenheit.)

Several standards are made up in 4-ounce (113 cubic centimeter) oil sample bottles from the standard methylene blue solutions by dilution with various proportions of water and marked with a number corresponding to the per cent of the original solutions in the diluted standard. A convenient set of standards is 1, 2, 3, 5, 7, 10, 13, 16, 19, 22, 25 and 30. Standards below 1, of course, can also be prepared. These standards, particularly the lighter ones, are not permanent and should therefore be made up fresh every few days. All bottles used for the standards, as well as for the test, should be selected with uniform sides and of about 32 to 34 millimeters inside diameter.

Four grams of the burned clay to be tested are added to 100 cubic centimeters of the methylene blue solution at 90 degrees Fahrenheit in an 8-ounce bottle, and the bottle is immediately stoppered and shaken for exactly 10 minutes at an approximate rate of 100 to 200 shakes per minute. The dye solution is quickly decanted into a suitable centrifuge tube and centrifuged for about 10 minutes. The clear dye solution is poured into a 4-ounce oil sample bottle and being reported as the number on the standard which matches the test.

Results

Tests were conducted by this method on a series of clays and compared with percolation yields from different lubricating oil stocks to several different colors. The percolation tests were run on 20-ounce hand filters containing 600 grams of clay, on the same samples of oil, running under as nearly the same conditions of temperature, rate of percolation, etc., as could be obtained.

The following are the comparative results:

Clay	Methylene Blue Number	Heavy lubricating oil filtered to 6 N.P.A.
A	0.8	2100
C	6.0	1380
R	7.5	1000
F	11	620
G	15	435
I	22	280

ETHYLENE GLYCOL FOR ANTI-FREEZE COOLING LIQUID

What is the nature of the liquid called glycol which is used as an antifreezing solution for radiators? How is it made and has it any injurious action on the hose connections?—R. T. C.

Ethylene glycol is one of the compounds of the alcohol group which has been made from petroleum. A large supply of the raw material is to be found in the still gas and especially the gas produced in the cracking operation. It may be made from some natural gas. The natural base for its preparation is the gas ethylene. This is treated with hydrochlorous acid, then the resulting compound is acted upon with sodium bicarbonate, and the ethylene glycol is obtained as a liquid.

Ethylene glycol is soluble in water. The pure substance has a freezing point about zero Fahrenheit and boils at 386 degrees. The high boiling point is an advantage in that there is practically no evaporation so that one charge should last the entire season. It is noncorrosive but has some action on rubber consequently hose connections should be changed when there is any indication of softening of the rubber. The liquid costs more than denatured alcohol but it is better adapted to motor conditions because of its high-boiling point and other properties.

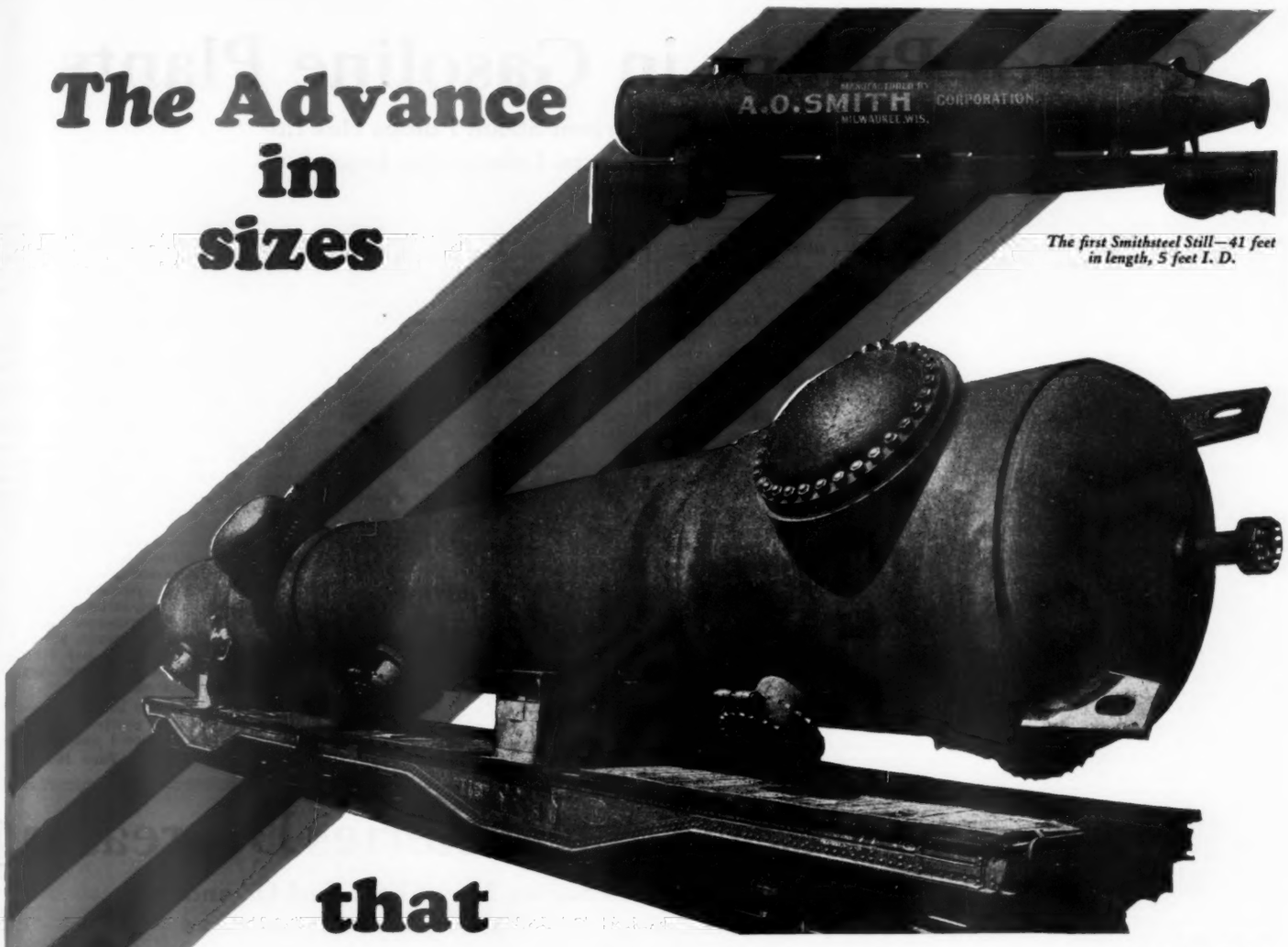
BRINE SOLUTION FOR REFRIGERATION

Is there any standard strength for making up brine used in connection with a refrigeration plant?—M. S. A.

The concentration of salt, sodium chloride, brine required to furnish the solution for the manufacture of ice and for cooling varies somewhat. When ice is being made the important consideration involving the quantity of salt is the space left between the bottoms of the cans and the tank. An approximate rule is to allow 15 pounds of salt to each cubic foot of brine which is required to fill the tank when the cans are in position. Some operators report that they allow 1,500 pounds of salt per ton of ice made per tank per 24 hours.

When calcium chloride brine is used an approximate quantity is estimated at one ton of calcium chloride to each ton of ice-making capacity.

The Advance in sizes



The first Smithsteel Still—41 feet in length, 5 feet I. D.

One of the latest—70 feet in length, 8 feet I. D.

that came *with Smith*

The first Smithsteel Cracking Stills were built in wall thickness of 2½ inches.

Since that time the Oil Refining Industry has steadily progressed to the point that a wall thickness of 3¾ inches is now frequently specified. Thicknesses up to 6 inches can be built in Smithsteel.

By themselves these figures mean nothing.

But when it is considered that each increase in wall thickness, made possible by Smithsteel, means corresponding increases in length and diameter—and therefore increased cracking capacity—these figures become significant to every refiner of crude oil.

A. O. SMITH CORPORATION, *Milwaukee, Wis.*
Oil Field Products Division Los Angeles

Care of Pumps in Gasoline Plants

Proper Maintenance of Direct Driven Steam Pumps Has Important Bearing on Operating Costs. Lubrication Important

By T. T. Rissinger*

A simple explanation of operation methods for direct-driven steam pumps may prove interesting. The duplex pump is really a twin type having two steam and two fluid cylinders, each steam cylinder being directly in line with a fluid cylinder and the steam and fluid pistons being on opposite ends of the same piston rod. Its operation is somewhat different from that of the ordinary steam engine, the ordinary steam engine having at each end of the steam cylinder only one steam channel from the steam chest, and having an eccentric-operated valve with a certain lap over the ports. The duplex pump has two steam channels, known as admission and exhaust ports for each end of the steam cylinder. The valve action is through a rocker arm connected to the piston rod, the design being such that the piston on one side of the duplex pump operates the valve on the other side.

When steam is admitted to one end of the cylinder the valve has the exhaust port for that end of the cylinder closed. As the piston moves forward and approaches the opposite end of the cylinder, it covers the exhaust port itself and is stopped from hitting the cylinder head by the compression of the exhaust steam in the end of the cylinder. A cycle is then repeated from the opposite end of the steam cylinder.

The very nature of this pump makes it necessary to deliver the full head of steam to the piston for the full stroke, and it naturally follows that the steam economy is not as great as that with regular steam engines or large crank and flywheel pumps. Of course, some of the larger direct-driven pumps make use of the expansive force of the steam by compounding, which is effected with two or more cylinders using the same steam. The first, or high-pressure cylinder, uses live steam the full stroke and then exhausts this steam into a larger cylinder which delivers appreciable additional power to the piston rod. As there is only a given amount of steam admitted to this low-pressure cylinder, its expansive force may be used to advantage. This compounding may be carried to triple-expansion, which, however, is not ordinarily done with steam pumps.

Simplex Pump

Since some operators use the single, or simplex, pump, a few words on that type may be in order. It is really one-half of a duplex pump except for the steam valve and valve mechanism, which are considerably different. Ordinarily, this type has only one steam channel from the steam chest for each end of the steam cylinder. Instead of the simple "D" valve of the duplex pump, this type uses a main steam valve, which may be either "D" or "B," or piston valve, and uses also a pilot, or reversing valve, which is quite often a small piston valve. This pilot valve operates the main steam valve and in turn is operated by a tappet, cam, or lever connection to the main piston rod. This explanation is rather general because valve action on various makes of simplex pumps differs greatly, although they all get about the same results.

Proper Care of Pumps

Consideration of the proper care of direct-driven steam pumps should prove much more interesting than the foregoing descriptions. Remarks along this line are brief, but they may bring out some discussion.

First, the plant designer should recognize that direct-driven steam pumps are made in any number of sizes and styles and that any of the leading manufacturers can furnish a pump that will give good continuous operation if it is used in the service for which it is designed. Choice of pumps for the service required should be very carefully considered. It might be a good rule to calculate the capacity required and then arbitrarily double that capacity when ordering, and the plant designer would probably be nearer right. The designer should also see that he actually obtains the proper mountings for the expected pump service. Bronze fittings are proper for water service, but cast-iron removable fluid cylinder liners will last a good many times longer on absorption oil than will bronze.

*Before California Natural Gasoline Association.

THE FIRST PUMPS

The first steam pump is believed to have been built in England in the year 1630. The first direct-driven pump was not built until 1841 or 211 years later. This pump was built by Henry R. Worthington, the pioneer developer of the modern pump.

This first direct-driven pump was single acting with a spring-thrown valve. It was some 15 years later or about 1856 when a really practical simplex pump was built, to be followed later with the first of the duplex type.

As for the piston rods, the writer believes that a large number of pump operators will agree with him in his opinion that the steam end of a piston rod will outlast the fluid end by a ratio of at least two to one. If this thought is really a fact, it would seem unreasonable to buy a pump with a solid rod, when a pump with a divided rod will show a saving in material, labor and service time.

Second, protection of pumps from the weather is essential. It seems ridiculous, for instance, to set a good pump out in the open on a couple of old blocks with crooked lines to and from it—these lines themselves probably too small, and expept the pump to give good service. A good pump is certainly entitled to a good foundation and to a shelter to protect it from sand and dirt in the air, and from rain.

Size of Connections

Third, referring again to the pipe line connections, such lines should never be reduced below the size of connections existing on the pump, particularly on the suction side of water circulating pumps that are operating at atmospheric pressure intake. This one item of attempting to save money by installation of inadequate suction lines has probably caused more valve trouble, more excessive knocking, and more reduction of pump output than any other one thing.

When pipe line connections are being planned, some extra connections to spray and feed-water pumps should be thrown in for fire protection. A cooling pond full of water would be a great help in firefighting if the regular supply was cut off or low during a fire.

Fourth, lubrication is of course a very important matter. Where liquid level controls, or speed regulators, are being used it is advisable to make lubricator connections above the balanced valve in the steam line in order to help prevent this valve from sticking and giving trouble. The type of lubricator chosen has a great deal to do with pump operation and maintenance, and the writer's experience leads him to recommend the mechanically operated force feed type over any other. A large number of plants are using large central hydrostatic lubricators with supply lines and separate feeds to each pump. These lubricating systems are generally made on the job and, in large plants, are undoubtedly a little cheaper than individual force feed lubricators, but that is about all the writer can say for them, since he does not believe in cheap or makeshift lubricators.

Fifth, there is very little to say on the operation of duplex pumps. If the pump is run at normal speed and kept prop-

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Fuel Costs at Refineries Decreasing

Government Survey Shows Less Fuel Oil and Coal Being Used. More Natural Gas and Coke

By G. R. Hopkins

Like most industries, the refining industry has in recent years been confronted with the problem of a decreased margin of profit, due both to a general lowering of prices and to rising costs. This has resulted in accelerating a program of increased efficiency as evidenced by improved methods and the installation of equipment designed to effect a number of economies hitherto regarded as unimportant. Perhaps the most important of these has been that of fuel economy for, as is not often realized, a refinery consumes about one-tenth as much fuel as it produces.

A recently completed canvass, made by the Bureau of Mines for the purpose of determining the trend of fuel consumption at refineries in the United States, showed the following outstanding points, (1) a decrease in the use of oil for fuel in 1926 of approximately 4,000,000 bbls. as compared with 1925; (2) a small decrease in the use of coal; (3) a material increase in the use of gas, both natural gas and refinery gas; and (4) a considerable increase in the use of petroleum coke.

The explanation of the decrease in the use of oil for fuel probably lies in the existence of a relatively strong fuel oil market in 1926. Wherever possible gas was substituted for oil. This was particularly evident in Texas where the consumption of oil decreased over 3,000,000 bbls., or 21 per cent, while the consumption of natural and refinery gas increased 63 per cent.

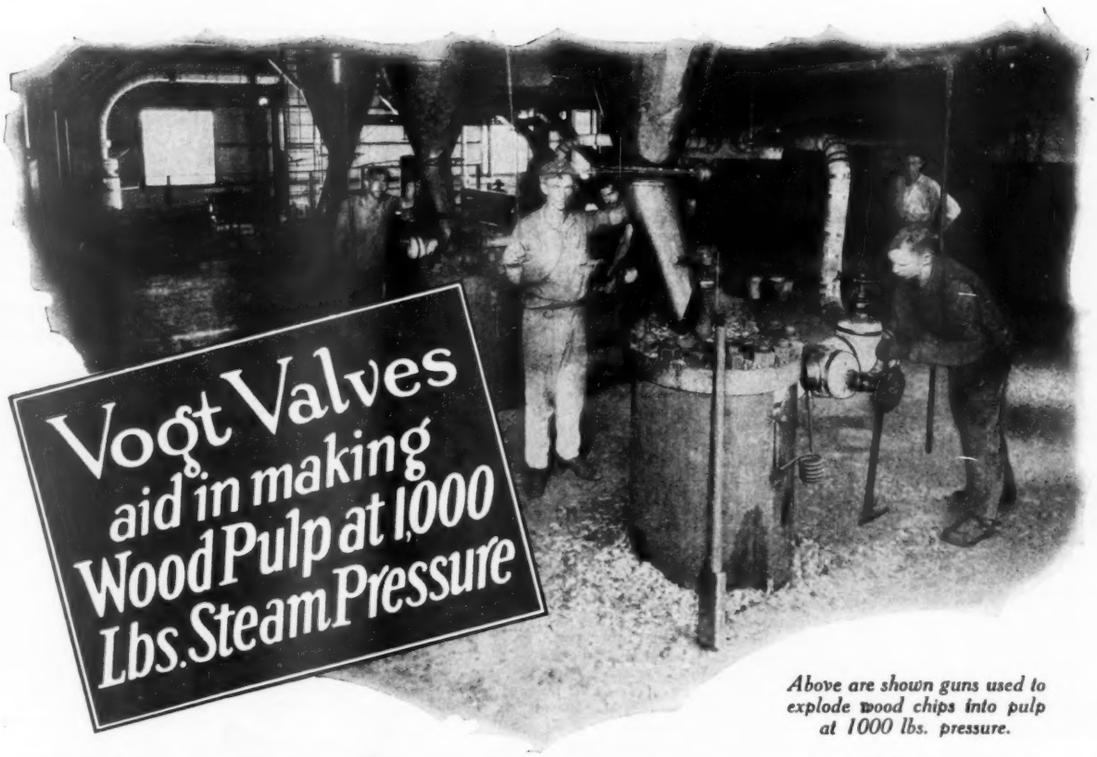
Every section of the country showed a gain in the use of refinery gas for fuel. In construction systems whereby still gases are recovered, the refineries have effected a two-fold economy, namely, a saving of gasoline recovered from the

(Continued on Page 168)

FUEL USED AT REFINERIES IN THE UNITED STATES, 1925-1926

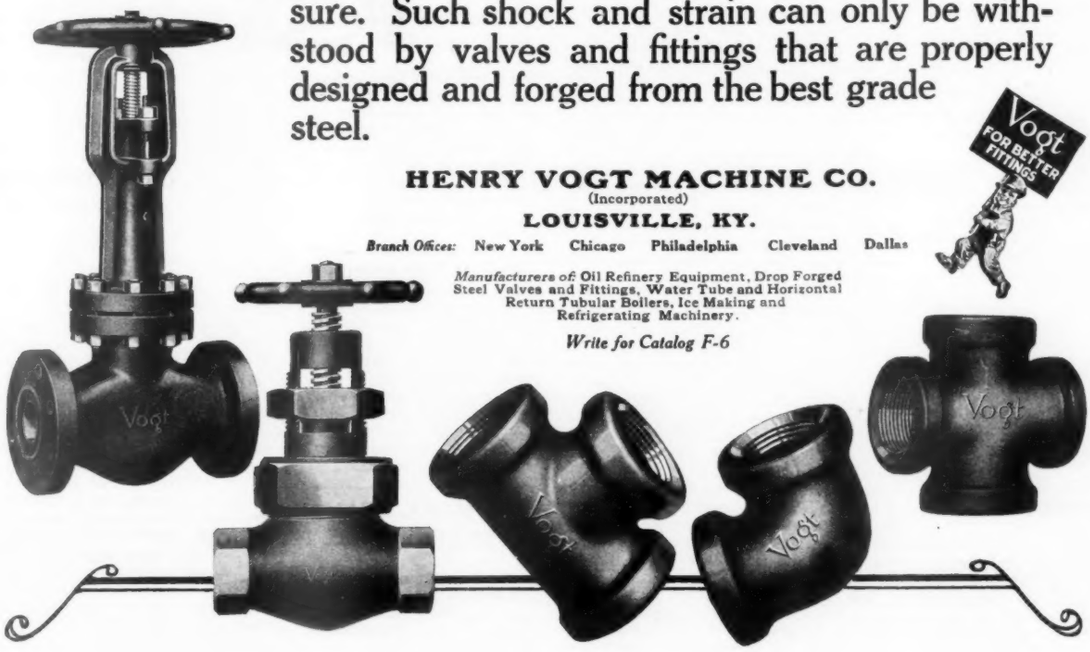
	Oil (1) Thousands of Bbls.	Coal Thous. of Short Tons	Gas (Millions Cu. Ft.) Natural	Gas (Millions Cu. Ft.) Refinery	Coke Thousands of Short Tons	Coke Other	Total B.t.u. (Billions Approx.)	Crude Run to Stills Thous. of Bbls.	B.t.u. per Bbl. Crude Run
1925—									
East Coast	14,164	1,406	.....	6,863	104	(2)	131,926	128,491	1,027,000
Appalachian	641	1,346	2,364	537	5	(3)	42,038	25,118	1,674,000
Indiana, Illinois, etc.	2,997	3,077	.....	5,505	33	(4)	104,755	67,159	1,560,000
Oklahoma	2,552	1	26,670	3,295	.....	...	45,751	61,837	740,000
Kansas and Missouri	3,021	229	5,955	3,175	6	...	33,846	35,775	946,000
Texas Inland	2,277	.....	4,900	422	8	...	19,490	35,957	542,000
Texas Gulf Coast	13,189	.....	12,956	7,354	79	...	102,830	108,325	949,000
Total Texas	15,466	....	17,856	7,776	87	...	122,320	144,282	848,000
Arkansas-Louisiana Inland	15	.....	6,267	353	.....	...	7,041	16,239	434,000
Louisiana Gulf Coast	4,920	.....	.....	2,518	59	...	33,934	50,758	668,000
Total Louisiana-Arkansas	4,935	.....	6,267	2,871	59	...	40,975	66,997	612,000
Rocky Mountain	1,761	94	19,007	3,448	20	...	37,188	26,164	1,421,000
California	4,318	.....	10,723	1,571	.....	...	42,417	184,097	230,000
Total United States	50,455	6,153	87,842	35,041	314	...	.....	739,920	813,000
Total B.t.u. (billions approx.)	302,730	159,978	92,234	36,793	9,420	61	601,216	.....	.....
1926—									
East Coast	14,701	1,447	.....	9,642	105	...	139,102	130,643	1,065,000
Appalachian	606	1,644	2,501	1,550	3	(5)	50,724	28,502	1,780,000
Indiana, Illinois, etc.	3,130	2,677	1	7,649	35	(6)	97,466	69,707	1,398,000
Oklahoma	2,010	6	25,957	5,425	7	...	45,377	61,409	739,000
Kansas and Missouri	2,085	226	8,048	3,478	5	...	30,638	35,097	873,000
Texas Inland	1,954	.....	3,626	537	10	...	16,395	36,183	453,000
Texas Gulf Coast	10,325	.....	25,121	12,370	127	...	105,126	119,927	877,000
Total Texas	12,279	.....	28,747	12,907	137	...	121,521	156,110	778,000
Arkansas-Louisiana Inland	50	.....	9,056	769	.....	...	10,616	19,507	544,000
Louisiana Gulf Coast	4,808	.....	.....	3,803	101	...	35,871	51,505	696,000
Total Louisiana-Arkansas	4,858	.....	9,056	4,572	101	...	46,487	71,012	655,000
Rocky Mountain	1,496	52	30,720	4,126	15	...	47,366	29,205	1,622,000
California	5,251	.....	16,419	2,728	.....	...	51,611	197,597	261,000
Total United States	46,416	6,052	121,449	52,077	408	...	.....	779,264	809,000
Total B.t.u. (billions approx.)	278,496	157,362	127,522	54,681	12,240	1	630,292	.....	.....

(1) Includes acid sludge. (2) 3,269 cords of wood. (3) 72,632 kilowatts. (4) 183,660 kilowatts. (5) 102,901 kilowatts. (6) 268,240 kilowatts.



Above are shown guns used to explode wood chips into pulp at 1000 lbs. pressure.

AT the plant of the Mason Fibre Company, Laurel, Mississippi, VOGT Valves and Fittings are operating under conditions probably more severe than generally encountered. Four times a minute VOGT valves are opened and closed at 1000 lbs. pressure. Such shock and strain can only be withstood by valves and fittings that are properly designed and forged from the best grade steel.



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Write for Catalog F-6

Of Interest to Sales Departments

Hold Employes Responsible for Unsafe Practices

By H. J. Tobin*
Standard Oil Co. of Indiana, Chicago.

So that you may understand our method of promoting safety in the sales division of the Standard Oil Co., it is necessary that you first comprehend our problem, the type of accidents we must cope with, their cause and the means at our disposal to eliminate that cause. To be sure, accidents are no respectors of persons and we sustain, as most of you do, accidents of all the various kinds and degrees that are known to the marketing end of the petroleum industry, from the tragedy of death to the showing of a profit in the business—which nowadays is indeed an accident.

But the particular accidents we suffer most frequently are automobile accidents. The Chicago division of the Standard Oil Co. is located in a heavily populated metropolitan district, very congested, where the automobile accident rate is great, and the power to combat this problem not entirely in our own hands.

Three Methods

Now in dealing with accident preven-

(Continued on Page 166)

*Before Petroleum Section, National Safety Congress.

RAILROAD HEAD POINTS TO ADVANTAGES OF OIL

Oil-burning electric locomotives have been placed in use in the yards of the Chicago & Northwestern Railway in Chicago for switching, and the advantages of this type of engine is outlined by George Hand, assistant to the president of the road. He says: "In the case of the oil-electrics, the oil engine idles when power is not being used and the cost of fuel consumed is negligible.

"The steam locomotives worked two shifts of 12 hours each. After each shift they were taken 4 miles to a roundhouse. The oil-electrics are in service the full 24 hours, the three new units having replaced six steam units.

"It is obvious, of course, that there is less wear and tear on the tracks and roadbed from lighter locomotives.

"As the fuel oil is automatically introduced to the engines, the duties of fireman have been largely removed. A fireman can now keep a constant watch for signals and for traffic on his side of the tracks, and materially assist the engineer in avoiding accidents and in speeding up switching operations."

To the foregoing observations there might be added others revealing benefits to the city. There is a gratifying absence of disturbing noises from puffing, exhausting steam, etc. Because of their swivel trucks, the oil-electrics round sharp curves silently, in contrast to the highly audible screeching set up by the steam powered units.

FRONTENAC CO. BUYS THREE RIVERS OIL CO.

CHATHAM, Ontario, Nov. 6.—Announcement has been made that Frontenac Oil Refineries, Ltd., of Montreal, Quebec, have purchased as a going concern the business and assets of the Three Rivers Oil & Gas Co., of Three Rivers, Quebec. This is a distributing system covering Three Rivers, Joliette, Shawinigan Falls and adjacent territories. C. O. Baptiste and L. H. Read, founders of the Three Rivers company, will remain in charge of the system for Frontenac Oil Refineries, Ltd. The latter company is low serving over 1,700 retailers in Montreal and vicinity.

Short Talks on Specifications

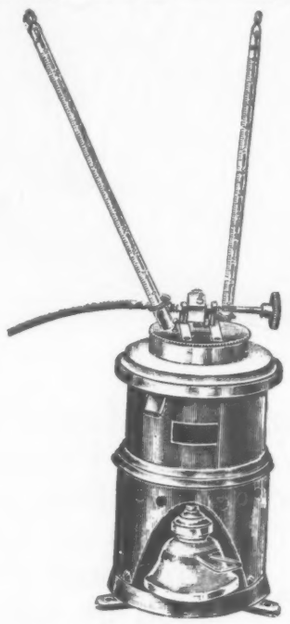
By W. T. Ziegenhain

FLASH AND FIRE POINT DETERMINATIONS BY USE OF THE TAG CLOSED TESTER.

There are many types of flash and fire test apparatus in common use, but through the program of standardization of testing equipment, the number is gradually decreasing. The types recommended by the American Society for Testing Materials are the Cleveland open cup for lubricants and all oils having a flash above 175 degrees Fahrenheit except fuel oils, the Tag closed cup for all oils having a flash below 175 degrees Fahrenheit and the Pensky-Martens tester for fuel oils. The principal difference in these lies in the fact that the Cleveland cup is open and the vapors distilling off of the oil during heating are partly dissipated in the air and the flash does not come until a sufficient quantity of these distill off to give an explosive mixture in air. The other two types of testers are closed and the vapors collect in the upper part of the flash cup during the heating.

When testing the same oil in the two types of apparatus, the closed tester will give lower results for the reason there is a greater quantity of vapors present at the point of the flame. The amount of difference between the results of these two machines is in turn, dependent upon the kind of oil being tested. An oil poorly fractionated will give results having a wider variation than one closely fractionated for as the same oil is run in the two machines the effect of the small quantity of light material contained in the poorly fractionated oil will be dissipated when using the open cup and the oil will not flash until the temperature is raised fairly high. When the closed cup is used, the small percentage of light fractions remain in the closed tester and soon their concentration is sufficient to cause a flash. In the case of the closely fractionated material, the tendency is the same but since closer fractionation implies a smaller percentage of lighter fractions in the oil, it would take longer for a sufficient amount of these to collect in the closed cup and the flash point would come relatively close to that shown on the open cup. This point is important to the salesman for he can better judge the flash point of his product based on specifications requiring the use of various kinds of testers. As a ready figure 15 degrees is sometimes used as the difference between the result shown on the closed and open testers when running kerosene but this practice is dangerous and this difference may run as much as 50 degrees Fahrenheit. This point emphasizes the fact that the only accurate way of determining the flash point is by taking it on the instrument prescribed and not attempting to convert the readings of one instrument to another unless necessary and then the above factors should be considered.

The Tag closed tester is simply a closed metal cup set into a bath of water which is heated by a burner giving a constant flame. A thermometer is suspended in the water and another is tightly suspended in the oil cup. A small gas flame is attached to the top of the closed oil cup and may be inserted into the cup by opening a small trap door arrangement in the lid of the oil cup. The door is opened and the flame projected into the cup simultaneously by revolving a small thumb screw as shown in the accompanying picture. The test procedure provides that the water bath be at least 20 degrees Fahrenheit lower in temperature than the expected flash point of the oil. Fifty c.c. of the oil to be tested is measured into the oil cup and its temperature must be at least 20 degrees Fahrenheit below its expected flash point. With the apparatus assembled as shown, the heating is started and progresses enough to heat the oil about 2 degrees per minute. When the temperature of the oil is about 9 degrees less than the expected flash point, the flame is lowered into the cup. This is continued, each time the oil temperature is raised 1 degree and the opening and closing of the lid to allow the application of the flame should take one full second. This is continued until the oil vapors ignite and the temperature at which this takes place is called the flash point.



MEETING OF EXECUTIVES CLUB

CHICAGO, Nov. 6.—According to an announcement received from Paul Hadlick, secretary, the Executives Club will hold its annual meeting at the Congress Hotel, Chicago, on November 11 and 12. This organization is composed of the executives of the various state oil associations. H. H. Ragle, head of the Michigan Jobber Association, is president and Paul Hadlick, secretary.

YET MORE BEAUTIFUL STATIONS ARE PLANNED

As completion increases in the retailing of gasoline many marketers are turning to artistic station designs to attract business. Most of the present stations are efficient and correct from an engineering standpoint but oil companies are now incorporating these same things in a program of "more beautiful" stations and in line with this trend, Union Oil Co. of California has instituted a competition open to architects and draughtsmen living in that area lying west of the Rocky Mountains to submit designs for service stations which will not only prove practical, but will be objects of beauty and civic assets as well.

In staging this competition, the Union Oil Co. is prompted, according to its officials, not so much by its own interests, but by a desire to give the cities and towns in which their service stations are located, units of beauty in service station design and construction.

The successful design will be used by the Union Oil Co. in the reconstruction of several hundred service stations in the oil marketing territory from Alaska to Mexico and in the Hawaiian Islands.

CONSUMPTION PER CAR CONTINUES TO GROW

Each year, gasoline consumption per car is increasing in spite of the better engine design and this fact has been explained by the greater use of automobiles for travel and the great increase in the use of buses. The railroads continue to confirm this indirectly through their lower passenger transportation earnings over this year to date. This decline in earnings has been most noticeable in the South where auto transportation is less seasonal and according to the detailed railroad earnings shown by "Railway Age." The first seven months of the year the decline in total railway earnings was almost $61,000,000, and of this loss almost $33,000,000 was due to a reduction in passenger business. The loss in July, the last month for which statistics are available, was $6,260,000. The last year in which passenger earnings showed an increase was 1923. They showed a reduction of 6.2 per cent in 1924; 1.7 per cent in 1925, and 1.5 per cent in 1926; while the loss in the first seven months of 1927 was 5.4 per cent.

"Relatively, the largest loss has occurred in the southern region, where it has amounted to $16,000,000 or about 18 per cent. The loss of the eastern lines has been about $8,000,000 and that of the western lines also about $8,000,000. For the first time in some years there has been a small decline in travel in sleeping and parlor cars, but most of the loss has been due to a decline in travel in day coaches, which are especially subject to the competition of the automobile. What to do to save passenger business remains one of the principal unsolved problems of the railroads."

CALIFORNIA GASOLINE SALES BY COMPANIES

The reported gasoline sales by the principal companies in California, over the first three-quarters of 1927 show the Standard Oil Co. of California leading all others and the Shell company second. The increased sales during each of the last two quarters of the year compared to the first quarter is particularly noticeable with these two companies. Of the smaller companies showing increased sales the Macmillan Petroleum Production Co. reported an increase from 542,781 gallons during the first quarter to 1,969,169 gallons the last quarter. This represents the largest percentage gain among all companies. The detailed figures appear below:

Gallonage of Principal Gasoline Distributors In California

First, Second and Third Quarters, 1927

Company—	1st Quar.	2nd Quar.	3rd Quar.
Standard ...	52,870,892	69,840,577	70,513,257
Shell	34,261,512	50,948,235	50,570,587
Union	26,369,781	36,882,280	37,565,409
Richfield ...	31,609,026	34,963,678	33,683,447
Associated ..	22,164,684	24,136,083	22,213,975
Calif. Pet. ..	12,876,180	14,107,481	14,815,194
Pan Amer. ..	10,927,121	9,014,352	7,410,753
General Pet..	7,724,687	8,308,242	8,704,649
Marine Ref. .	4,902,386	5,277,610	5,406,103
Wilshire	4,546,993	4,015,321	5,722,969
Western Oil & Ref.	1,431,307	2,125,058	3,007,161
Vernon	1,365,435	1,181,239	600,866
Gilmore	774,915	805,305	1,154,982
Seaside	759,248	910,509	978,748
Macmillan Pet. Prod.	542,781	1,451,252	1,969,169
Calif. East'n	369,790	467,875	288,826

Unloading Rack Wrench Coupling

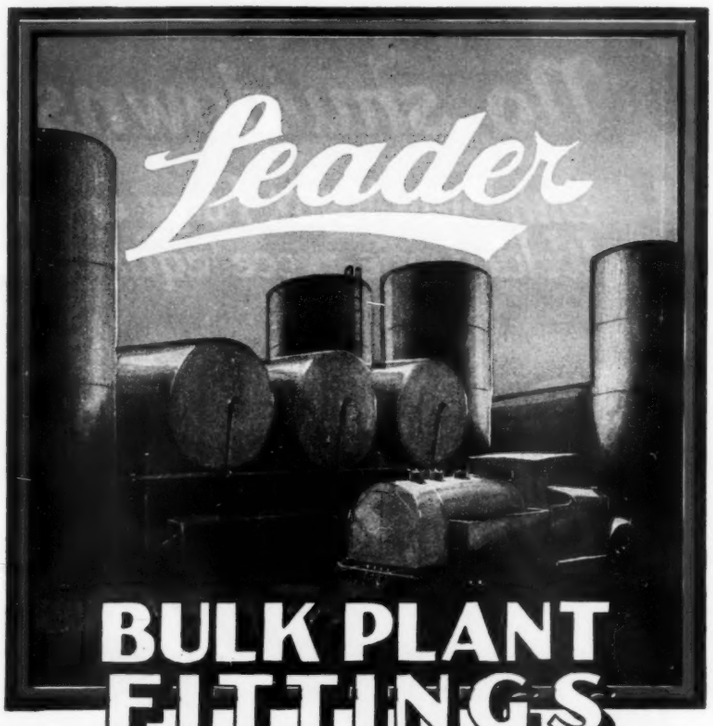
Used to fasten tank car drop pipe to unloading rack. Standard on all LEADER overhead Unloading Racks. Seat is not metal. Metal seats nick and cause leaky suction lines. Bushing and spanner are of iron—nipple is built of brass.

Non-Freezing Drain Valve

Extra heavy brass construction throughout; non-freezing positive seat; combination locking hasp and operating lever; quickest, surest and simplest method of removing water from above ground tanks.

Two-Way Swing Joint

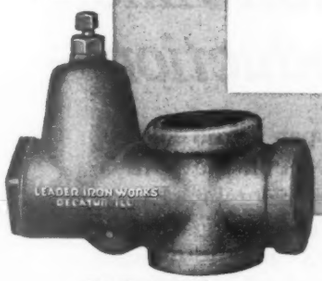
Distinctive for its simplicity of design; iron ell and collars; octagon shaped brass nipples; special composition seats; can always be kept tight; sturdily constructed yet not heavy or bundlesome; standard equipment on all LEADER Tank Car Unloading Racks and Truck Tank Loaders.



BULK PLANT FITTINGS *Must be Right!*

Efficient and economical operation of your Bulk plant is assured by use of the LEADER Bulk plant fittings designed and constructed by the LEADER organization of builders—engineers and practical oil men, who know what is expected of these fittings in operation. Absolute precision in workmanship and a highest standard of quality in material enable us to back these fittings with the assurance of the LEADER unconditional guarantee.

LEADER IRON WORKS
2130 NORTH JASPER
DECATUR. ILL.



By-Pass Valve

Special iron body and seat; rustless steel valve and stem; sturdily constructed; designed for installation into discharge line, reducing fittings to a minimum; compensating action positively prevents building up a pressure beyond the one at which it is set; automatically cleans its seat; no leaks; opens and closes with a snap.

Pressure and Vacuum Vent Cap

Brass body; removable brass cap, properly screened. Positive on both pressure and vacuum; allows gauging through it; LEADER female thread and nipple raises valve to keep out snow and water.

Suction Strainer

Strainer rests on bottom of tank car and is connected to foot of drop pipe. Reduces pump suction line troubles Built of brass, properly screened.

No shutdowns—

with BLAW-KNOX Forge & Hammer Welded one-piece equipment

Production Time for Production—

There are no joints, no seams to open up, no electric welding to caulk on seams or rivets on Blaw-Knox Forge and Hammer Welded pressure tanks. Every minute of production time can be used for PRODUCTION—and increased output results with a consequent reduction in production costs.

Blaw-Knox Forge and Hammer Welded pressure tanks are guaranteed one-piece, bottletight, leakless.

WO-2871

BLAW-KNOX COMPANY

608 FARMERS BANK BLDG., PITTSBURGH ~ REPRESENTATIVES IN PRINCIPAL CITIES

NEW LOW TANK WAGON PRICES CUT REVENUE $1,500,000 A DAY

AVERAGE TANK WAGON PRICE IN 50 CITIES

(Exclusive of tax)

January 1, 1926	16.133
February 1	16.213
March 1	17.267
April 1	18.517
May 1	18.487
June 1	19.607
July 1	16.697
August 1	19.697
September 1	19.587
October 1	19.167
November 1	18.187
December 1	17.607
January 1, 1927	17.567
February 1	17.469
March 1	17.007
April 1	16.160
May 1	15.320
June 1	14.720
July 1	14.86
August 1	14.89
September 1	14.62
October 1	14.39
November 1	14.36

As October closed, with gasoline tank-wagon prices in The Oil and Gas Journal's 50 cities at a new low for the year, the five months just passed marks the longest period gasoline tank wagon prices have remained below 15 cents since 1915. The average of 14.39 cents for October is 4.81 cents below the average of a year ago and is decreasing the revenue to the industry more than $1,500,000 a day, compared to last year.

With a surplus of gasoline in California, the East Coast is serving as a dumping ground for it, and while the Midwest is passing through a period of keen competition with plenty of material available the general outlook for materially better prices is discouraging. Over the month there were but few changes and most of these came in the larger cities and were lower because of the extremely competitive conditions at these points of high consumption.

Many companies attempted to build up gallonage at a great sacrifice in the regular margin. Bulk stations have been largely responsible for this and there is a tendency for this type of station to increase in number. At present, with prices at these stations from 2 to 4 cents below the regular price, the percentage savings, viewed from the consumer's standpoint, is high, for even the regular price is very low.

At many points this 3-cent difference represents 20 per cent of the total cost to the consumer. The success of these bulk stations is problematical after prices are back to normal. Some think that business is attracted to these stations because the percentage of savings is high now, and with the refinery prices low this type of station can afford to allow a wide differential since less capital is needed. Others contend that as the gasoline prices go back to normal consumers will pay more attention to the price paid and will seek these stations.

The major changes in gasoline prices have been fairly well centered in the Illinois, Indiana, Michigan section, and this can be explained by the high concentration of population and the great number of refining centers supplying this territory. This has served as a convenient dumping grounds for outside refiners and competition among refiners normally supplying this territory has forced prices to a minimum.

GASOLINE PRICES EFFECTIVE NOVEMBER 1, 1927

Table showing gasoline tank wagon prices as of November 1, 1927, exclusive of taxes, in 50 representative cities, including the amount and the date of changes since November 1, 1927. High and low prices and state taxes also given.

	Prices Oct. 1		Prices Nov. 1	High and Low —1926—		—1925—		Tax Nov. 1 1927
Birmingham, Ala.	14.0	....	14.0	20.0	16.0	20.0	13.0	4.0
Phoenix, Ariz.	19.0	...	19.0	22.0	19.0	20.0	18.0	3.0
Little Rock, Ark.	11.0	....	11.0	18.0	14.0	19.0	12.0	5.0
San Francisco, Calif.	14.0	..	14.0	16.0	13.0	15.0	13.0	3.0
Denver, Colo.	13.0	....	13.0	20.0	16.0	20.0	12.0	3.0
Hartford, Conn.	19.0	....	19.0	21.0	17.0	21.0	15.0	2.0
Dover, Del.	16.0	....	16.0	20.0	17.0	21.0	15.0	3.0
Jacksonville, Fla.	13.0	....	13.0	19.0	12.0	19.0	12.0	5.0
Atlanta, Ga.	12.0	..	12.0	21.0	14.0	21.0	14.0	4.0
Boise, Idaho	19.5	...	19.5	24.0	20.0	21.5	15.0	4.0
Peoria, Ill.	9.2	....	9.2	19.2	10.5	19.2	10.5	2.0
Chicago, Ill.	14.0	..	14.0	18.0	15.0	18.0	13.0	2.0
Indianapolis, Ind.	11.2	12 10.2	10.2	19.2	16.2	19.2	13.2	3.0
Des Moines, Iowa	9.9	....	9.9	19.5	16.0	19.5	13.5	3.0
Wichita, Kans.	11.8	....	11.8	16.8	14.8	18.8	8.8	2.0
Louisville, Ky.	14.0	....	14.0	20.0	17.0	19.0	12.0	5.0
New Orleans, La.	11.5	26 12.5	12.5	17.5	13.5	18.5	11.5	†3.0
Augusta, Me.	17.0	....	17.0	21.0	17.0	22.0	15.0	3.0
Baltimore, Md.	16.0	....	16.0	19.0	15.0	19.0	13.0	4.0
Springfield, Mass.	17.0	....	17.0	21.0	17.0	21.0	15.0	...
Detroit, Mich.	13.8	5 11.8	11.8	19.8	16.8	19.8	13.8	3.0
Duluth, Minn.	12.5	....	12.5	20.5	15.5	20.5	13.5	2.0
Natchez, Miss.	12.5	....	12.5	18.5	15.5	18.5	11.5	4.0
Kansas City, Mo.	10.9	..	10.9	18.9	15.9	18.9	12.9	†3.0
Helena, Mont.	19.5	....	19.5	24.0	21.0	24.0	18.0	3.0
Omaha, Neb.	12.25	....	12.25	19.25	14.25	19.25	10.0	2.0
Reno, Nev.	18.0	....	18.0	19.5	16.5	18.5	16.5	4.0
Newark, N. J.	16.0	....	16.0	19.0	15.0	19.0	13.5	2.0
Albuquerque, N. Mex.	16.0	....	16.0	26.5	20.0	23.5	19.5	5.0
New York, N. Y.	17.0	....	17.0	21.0	17.0	22.0	15.0	...
Charlotte, N. C.	16.0	....	16.0	19.5	15.5	20.0	12.0	4.0
Fargo, N. D.	14.0	27 13.0	13.0	21.0	18.9	20.9	14.9	2.0
Cleveland, Ohio	14.0	....	14.0	20.0	16.0	18.5	15.0	3.0
Tulsa, Okla.	12.0	....	12.0	17.0	13.0	18.0	9.5	3.0
Portland, Ore.	14.5	....	14.5	16.0	13.0	15.0	13.0	3.0

The next time you order packing, think of McKim gaskets.

Honestly, wouldn't you rather have a ready-to-use metallic gasket?

You KNOW you would!

McKim Metallic Asbestos Gaskets for Pipe Flanges—Booster Pumps—Gas Engines, etc.

Catalogue No. 17 on Request

McCORD RADIATOR & MFG. CO.
Gasket Division
DETROIT, MICHIGAN

Manufacturers of McCord Force Feed Lubricators

MEET
the emergency
BEFORE
it meets
YOU

Failure of a working barrel, a ball and seat, a valve or a pump means an emergency—a pulling job that costs money, means replacements and lost production. Many major production companies meet the emergency by replacements of Hough Pumping Specialties for they have the reputation of performing long and efficiently. A trial will convince you.

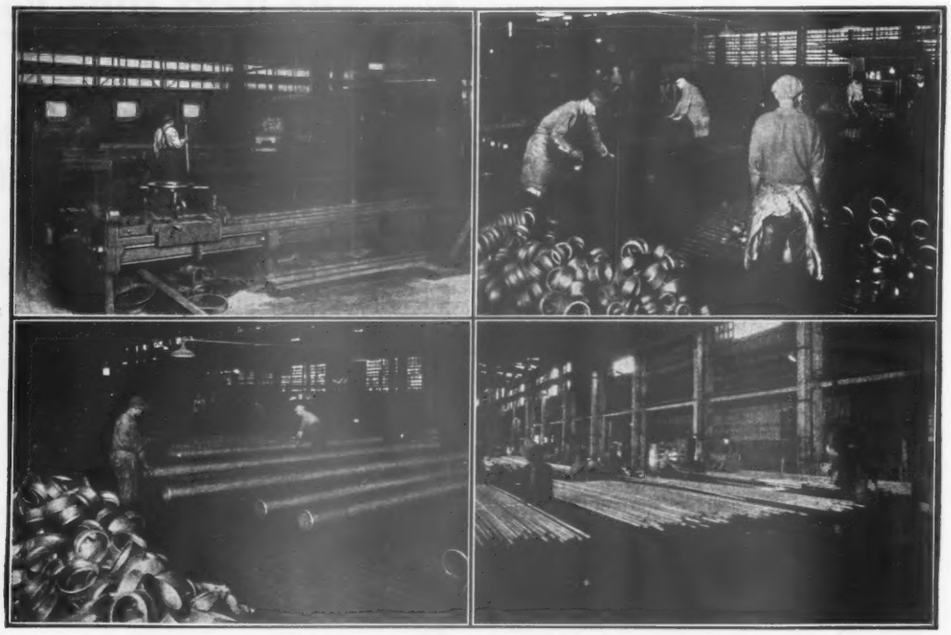
THE CHARLES N. HOUGH MFG. CO.
Franklin, Penna.

W. Tarkington,
Sales Representative
1724 Ruth Street,
Houston, Texas

C. O. Shumaker,
Sales Representative
1143 South Xanthus St.,
Tulsa, Okla.

Products That Cut Down Your Underground Overhead

MAKING GOOD IN THE FIELD MAKES FRIENDS FOR WHEELING



Wheeling Inspection is thorough. The accuracy of threads on pipe and couplings is systematically checked against working gauges. Each individual threaded end and each coupling is checked and verified with a gauge. No expense has been spared to insure a high standard of perfection for all products.

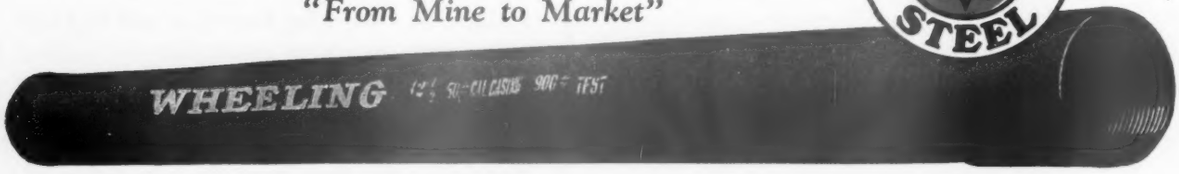
Making Sure That Wheeling "Gets Down to Business"

INSPECTING Wheeling (La Belle) Oil Country Goods is a business in itself—a business of training men to the standards of Wheeling practice—a business of maintaining the most efficient testing equipment, working gauges and other apparatus—a business of providing an adequate organization to insure a high standard of perfection for all product from mine to market. By treating the inspection of its products as a business—a specialized industry in itself—Wheeling gets results that mean dollars to drillers. When Wheeling (La Belle) arrives it means "get down to business"—*freedom from grief!*

WHEELING STEEL CORPORATION, WHEELING, W. VA.

"From Mine to Market"

WHEELING STEEL



WHEELING

CASING · TUBING · LINE PIPE

	Prices Oct. 1		Prices Nov. 1	High and Low 1926		High and Low 1925		Tax Nov. 1 1927
Philadelphia, Pa	14.0	....	14.0	20.0	17.0	21.0	15.0	‡3.0
Providence, R. I.	17.0	....	17.0	21.0	17.0	22.0	15.0	2.0
Charleston, S. C.	15.0	....	15.0	19.5	15.0	20.5	12.5	5.0
Huron, S. D.	14.5	....	14.5	20.5	14.0	20.0	13.0	4.0
Memphis, Tenn.	12.0	11 13.5	13.5	18.5	13.5	18.5	10.5	3.0
Dallas, Tex.	11.0	....	11.0	17.0	13.0	18.0	10.0	3.0
Salt Lake City, Utah	17.5	....	17.5	22.5	18.5	21.5	17.5	3.5
Burlington, Vt.	17.0	....	17.0	21.0	18.0	22.0	15.0	2.0
Norfolk, Va.	16.0	....	16.0	19.0	15.0	20.0	14.5	4.5
Washington, D. C.	16.0	....	16.0	19.0	15.0	19.0	14.0	2.0
Charleston, W. Va.	16.0	....	16.0	19.0	15.0	19.0	14.0	4.0
Milwaukee, Wis.	13.1	....	13.1	19.1	16.1	19.1	13.1	2.0
Casper, Wyo.	14.0	....	14.0	20.0	17.0	20.0	15.0	3.0
Seattle, Wash.	14.5	....	14.5	16.0	13.0	15.0	13.0	2.0
Minneapolis, Minn.	11.0	....	11.0	20.2	15.2	20.2	13.2	2.0
Average price	14.39	....	14.36	19.717	15.713	19.647	13.629	3.0

†State tax 2 cents, remainder city tax. ‡Tax paid by dealer.

NEW LOCATIONS IN TEXAS PANHANDLE AND NORTH AND WEST TEXAS FIELDS

TEXAS PANHANDLE—FIRST REPORTS

Carson County

The Texas Company's No. 2 C. R. Garner, 990 feet south and west of the NE cor. of Section 96, Block 4, I. & G. N. Survey. Same company's No. 1 Charles Kalka, 1,332 feet south and 1,324 feet east of the NW cor. of Section 43, Block 4, I. & G. N. Survey.

Gray County

Magnolia Petroleum Co.'s No. 1 J. B. Bowers, 330 feet north and east of SW cor. of NW fo Section 63, Block B-2, H. & G. N. Survey. Gulf Production Co.'s No. 3 J. B. Bowers-A, 330 feet north and west of SE cor. of their 160-acre lease out of Section 89, Block B-2, H. & G. N. Survey. Phillips Petroleum Co.'s No. 3 W. Jackson, 330 feet north and west of the SE cor. of the S half of the NE of Section 88, Block B-2, H. & G. N. Survey. Same company's No. 2 W. Jackson-Riley, 330 feet south and east of the NW cor. of the W half of SW of Section 88, Block B-2, H. & G. N. Survey. The Texas Company's No. 1 J. B. Bowers, 330 feet north and east of SW cor. of the east 160 acres of Section 89, Block B-2, H. & G. N. Survey. Same company's No. 2 J B. Bowers, 330 feet south and west of the NE cor. of SE of Section 93, Block B-2, H. & G. N. Survey. Same company's No. 1 S. W. McLarty, 1,650 feet north and 330 feet west of SE cor. of Section 2, B. & B. Survey. Same company's No. 4 G. H. Saunders, 500 feet south and 1,500 feet east of the NW cor. of Section 1, J. G. Eustis Survey.

Hutchinson County

Ryan Consolidated Petroleum Corp.'s No. 1 E. Cockrell, 330 feet north and west of the SE cor. of the SW of the NE of Section 2, Block Y.

NORTH CENTRAL AND WEST TEXAS—FIRST REPORTS

Archer County

Consolidated Oil Co. and Continental Oil Co.'s No. 5 G. T. Netherton, 900 feet south and 660 feet east of the NW cor. SE, Section 95, A. T. N. C. L. Survey. P. P. Steed and others' No. 4 J. J. Perkins and others-A, 854 feet south and 830 feet east NW cor. of the east 80 acres of Section 27, Denton County School Lands, League 3, A-117. Consolidated Oil Co.'s No. 2 Earl Beardon, 1,700 feet north and 1,000 feet west of SE cor. of the John Riley Survey No. 3, A-364. D. O. Johnson and others' No. 1 H. L. and J. F. Ward, 2,351 feet north and 150 feet west of SE cor. of Section 1,374, T. E. & L. Survey. Pandem Oil Co.'s No. 1 L. L. Hudson, 450 feet north and 1,050 feet east of SW cor. of their lease out of the N half of Section 80, Club Ranch Subdivision.

Brown County

Amerada Petroleum Corp.'s No. 1 A. A. Moore, 150 feet north and west of the SE cor. of the west 11.5 acres of the north 64 acres of the A. A. Moore tract, and located in the R. F. DeBord Survey, A-2,136.

Crane County

Pecos Oil Co.'s No. 15 University Land, 990 feet north and 1,650 feet east of the SW cor. of Section 47, Block 30, University Land. Same company's No. 16 University Land, 1,650 feet north and east of the SW cor. of Section 47, Block 30, University Lands. Simms Oil Co. and Atlantic Oil Producing Co.'s No. 11 University Land-D, 1,650 feet north and 990 feet west of the SE cor. of Section 46, Block 30, University Land. Same company's No. 12 University Land-D, 2,310 feet north and west of the SE cor. of Section 46, Block 30, University Land.

Crockett County

J. S. Kimbrough's No. 1 H. M. Halff, 150 feet south and east of the NW cor. of Section 69, Block 1, I. & G. N. Survey.

Cooke County

Green-Perkins and Skelly Oil Co.'s No. 1 Louise Campbell, 150 feet north and 1,050 feet east of the SW cor. of the Louise Campbell tract out of the O. F. Leverett Survey, A-607. Lesh-McCall and others' No. 1 Bailey English, 1,200 feet south and 150 feet west of NE cor. of the E. Faris Survey, A-387, being 150 feet north and west of the SE cor. of their 80-acre lease. Sun Oil Co.'s No. 6 J. Hacker, 375 feet south and 350 feet west of the NE cor. of their 77-acre lease out of Section 13, Thomas Scott Survey, A-900.

Culberson County

Deep Rock Oil Co.'s No. 2 Kloh-Rumsey, 1,650 feet north and 660 feet west of the SE cor. of Section 21 B,lock 59, Township 7, T. P. R. R. Survey.

Howard County

Coyle-Concord Oil Co.'s No. 1 Dora Roberts, 1,830 feet south and 660 feet west of the NE cor. of Section 156, Block 29, W. & N. W. Survey. F. H. E. Oil Co.'s No. 2 Dora Roberts-A, 1,170 feet south and 660 feet west of the NE cor. of Section 156, Block 29, W. & N. W. Survey.

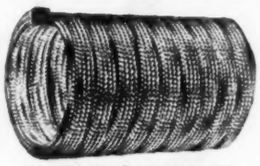
Baylor County

Mel Richards' No. 1 J. A. Young, 150 feet north and west of SE cor. of the south 10 acres of the NW of NW of Section 2,426, T. E. & L. Survey.

Jack County

Clay Wilson Oil Co.'s No. 1 H. L. Greene, 150 feet north and west of the SE cor. of the H. L. Greene 275-acre tract out of the Edward Wray Survey, A-882. Bland & Strang's No. 3 Brentmore, Inc., 318 feet south and 3,126 feet east of the most westerly NW cor. of the J. W. Williams Survey, A-877. Same company's No. 4 Brentmore, Inc., 1,429 feet south and 1,008 feet east of the most westerly NW cor. of the J. W. Williams Survey, A-877. Same company's No. 5 Brentmore, Inc., 3,908 feet south and 1,308 feet east of the most

Outstanding Service in Pumping and Refining

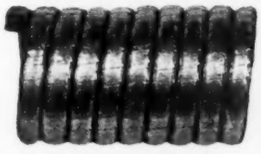


Gas Lift Compressors
Hot Oil Pumps

Style 250 "Craneum," finest packing ever developed on high temperature work. Long service. Temperatures to 1500° F. Pressures to 2,000 lbs.

Gasoline Pumps
Mineral Seal Oil

Style 110. Asbestos coil, heavily wrapped with babbitt foil gives resilience. Runs cool and gives long efficient service.



Centrifugal Pumps

Style 150, "Craneum." Runs without friction or abrasion. Has proven ideal in centrifugal work at temperatures up to 450° F.

Steam, Air and Ammonia

Style 300, gas, air and ammonia compressors and steam. Resilient non-abrasive. Metallic wearing face. Maximum steam pressure 300 lbs.

Tell us your requirements. We have satisfied them for refinery superintendents everywhere. Order from jobber or direct.

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"John Crane" Metallic

FENWICK-REDDAWAY MFG CO. NEWARK NEW JERSEY
IWANA HAIR BELT
"IWANA"
HAIR BELT

Elasticity of "IWANA" enables the belt to absorb sudden and intermittent strains prevalent in oil field work, viz.: pulling tubing, running pipe, spudding and fishing.

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NEWARK, N. J.
Tulsa Representative: A. F. Campbell, P. O. Box 171

50th Anniversary 1877-1927

Sturdy in every part

Kennedy products are handled by wholesalers everywhere, and ample stocks are maintained for prompt delivery.

NOTE the sturdy proportions of body, bonnet, flanges, stem, stuffing box and bolts of this 1600-lb. test pressure Kennedy Gate Valve. This type is one of the Kennedy line for service in the oil industry, including also 400-lb., 700-lb. and 1000 lb. test pressure gate valves, as well as a wide range of low pressure, standard pressure and extreme pressure globe and gate valves for every producing, refining and pipe line service, and a complete line of standard cast iron flanged fittings and malleable iron screwed fittings.

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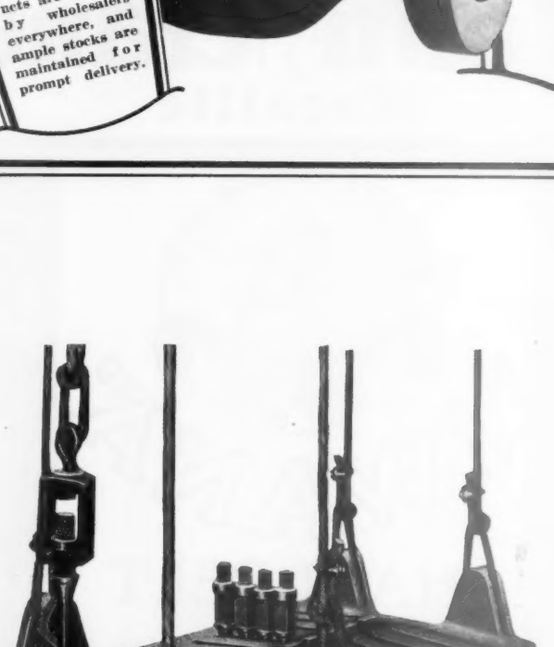
THE KENNEDY VALVE MFG. CO., Elmira, N. Y.
Branches in principal cities

KENNEDY

VALVES-PIPE FITTINGS-FIRE HYDRANTS



The Lorraine Sucker Rod Rack

Pays for Itself In Increased Production

The prevention of damage to sucker rods is reason enough for the installation of a Lorraine Sucker Rod Rack, but in addition to factors of safety and the prevention of damage, it saves enough time in pulling rods and getting the well back on production to pay for itself in increased production in a very short time.

Visit a well with a Lorraine Sucker Rod Rack installation and ask the men—"How about it." Complete descriptive bulletin mailed on request.

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Kern County Representatives:
New Method Pipe Slotting Company
Phone 465 Taft

westerly NW cor. of the J. W. Williams Survey, A-877. Same company's No. 6 Brentmore, Inc., 2,029 feet south and 1,608 feet east of the most westerly NW cor. of the J. W. Williams Survey, A-877. Chapman & Fitzhue's No. 1 Mrs. S. C. Cantrell, 150 feet north and 450 feet east of the SW cor. of Section 2, S. P. R. R. Survey, A-2,222. Connell & Nixon's No. 1 James Ellis and others, 150 feet south and east of the NW cor. of Section 4, J. W. Williams Survey, A-877. Same company's No. 2 James Ellis and others, 450 feet south and 150 feet east of the NW cor. of Section 4, J. W. Williams Survey, A-877. Dale Oil Corp.'s No. 1 William Hanna, 469 feet south and 1,500 feet east of the NW cor. of Section 3,313, T. E. & L. Survey. Galbraith and others' No. 1 W. A. Shown and others, 1,716 feet south and 1,841 feet east of the most westerly NW cor. of the J. B. Irvine Survey, A-312. R. G. Ryan and others' No. 1 C. C. Calvin, 150 feet north and east of the SW cor. of the south 120 acres of the C. C. Calvin 254-acre tract out of Section 2, S. P. R. R. Survey, A-1,403. Seaboard Oil & Gas Co. and others' No. 2 J. W. Cullers and others, 150 feet south and 558 feet west of the NE cor. of their 60-acre lease out of Section 4, S. P. R. R. Survey, A-2,188. Shaw & Rathke's No. 3 J. W. Cullers and others, 150 feet south and 725 feet west of the NE cor. of the J. W. Cullers and others' tract out of Section 4, S. P. R. R. Survey, A-2,188 feet. Same company's No. 4 J. W. Cullers and others, 150 feet south and 1,158 feet west of the NE cor. of the J. W. Cullers and others' tract out of Section 4, S. P. R. R. Survey, A-2,188.

Mitchell County

Paul C. Teas and others' No. 1 A. C. Mills, 330 feet south and 2,400 feet west of the NW cor. of Section 196, Block 3, H. & G. N. Survey, and located in Lot 11, C. A. O'Keefe Subdivision (J. P. Smith Survey, No. 30).

Montague County

Arco Oil Co.'s No. 2 Mrs. S. F. Loy and others, 2,925 feet north and 150 feet east of the most westerly SW cor. of the Mrs. S. F. Loy and others' 210-acre tract out of the William Donoho Survey, A-178, being 150 feet north and east of the SW cor. of their 49.5-acre lease. Arco Oil Co.'s No. 2 J. W. Maddox-B, 450 feet south and 150 feet east of the NW cor. of the S half of Lot 14, S. H. Arnold Survey, A-5. Same company's No. 1 Mrs. M. H. Salmon-C, 1,425 feet south and 1,200 feet east of the NW cor. of the Mrs. M. H. Salmon 421-acre tract out of the F. Robertson Survey, A-620, being 150 feet north and west of the SE cor. of their 20-acre "C" lease. Bridwell & Heydrick's No. 2 Mrs. M. H. Salmon-A, 1,950 feet south and 1,500 feet east of the NW cor. of the Mrs. M. H. Salmon 421-acre tract out of the F. Robertson Survey, A-620, being 450 feet south and 150 feet east of the NW cor. of their 62-acre lease "A" out of the F. Robertson Survey, A-620. Continental Oil Co.'s No. 3 Mrs. A. B. Hinton, 2,800 feet south and 1,700 feet west of the NE cor. of the Alex Coats Survey, A-129, being 200 feet south and 150 feet east of the NW cor. of their 100-acre lease. Humble Oil & Refining Co.'s No. 2 Mrs. A. B. Hinton, 3,195 feet south and 2,050 feet west of the NE cor. of the Alex Coats Survey, A-129, being 1,123.4 feet north and 200 feet west of the SE cor. of their 120-acre lease.

Pecos County

Roxana Petroleum Corp.'s No. 2 Mrs. M. A. Smith-A, 330 feet north and 2,733 feet east of the SW cor. of Section 27, Block 194, G. C. & S. F. Survey.

Tom Green County

Marland Oil Co.'s No. 1 J. W. Johnson, C of SW of the R. B. Sanderson Survey, No. 6. Same company's No. 1 J. W. Johnson-A, 1,320 feet southeast of the northwest line and 1,320 feet of the southwest line of John Heinrich Survey, No. 537.

Wichita County

T. Lomax and others' No. 1 Mrs. B. Parker and others' 350 feet south and east of the NW cor. of the west 122.5 acres of the east 215.7 acres of Section 5, John M. McColl Survey, A-192. W. M. Moore's No. 3 R. L. Crudup, 42 feet south and 250 feet east of the NW cor. of Section 19, Denton County School lands, League 4, A-417. W. Hammon and others' No. 4 Kemp & Kell, 375 feet north and 150 feet west of the SE cor. of the NE of the NE of Section 6, S. P. R. R. Survey, A-797. L. P. Hammond's No. 6 Grace Jennings, 300 feet south and 400 feet west of the NE cor. of the west 50 acres of the east 100 acres of the south 160 acres of Section 12, H. T. & B. Survey, A-473.

Wilbarger County

Fain-McGaha Oil Corp.'s No. 1 W. T. Waggoner-L, 150 feet south and east of the NW cor. of the south 200 acres of the north 300 acres of the east 360 acres of Section 31, Block 4, H. & T. C. Survey. H. Muse & Robinson's No. 1 W. O. Womach, 150 feet north and west of the SE cor. of Section 1, Block 7, H. & T. C. Survey.

Winkler County

G. M. Church and others' No. 2 Ida Hendrick, 330 feet north and east of the SW cor. of the W half of NE of Section 29, Block B-5, School land. Humble Oil & Refining Co.'s No. 1 Ida Hendrick-B, 330 feet south and east of the NW cor. of SE of Section 29, Block B-5, School land. Same company's No. 2 Ida Hendrick-B, 330 feet north and east of SW cor. of the N half of SE of Section 29, Block B-5, School land. Independent Oil & Gas Co.'s No. 2 Grisham-Hunter-B, 1,650 feet south and 2,310 feet east of the NW cor. of Section 41, Block B-5, School land. Same company's No. 3 Grisham-Hunter-B, 990 feet south and 2,310 feet east of the NW cor. of Section 41, Block B-5, School land. Republic Production Co.'s No. 1-A Grisham-Hunter-B, 380 feet north and 990 feet west of the SE cor. of Section 41, Block B-5, School land. Roxana Petroleum Corp.'s No. 2 Grisham-Hunter-D, 1,650 feet south and 2,310 feet west of the NE cor. of Section 41, Block B-5, School land.

Young County

G. B. Hamilton and others' No. 1 H. E. Neeley, 150 feet south and east of the NW cor. of the SE of Section 176, T. E. & L. Survey. Holbrook & Woods' No. 1 J. C. McDonald, 1,350 feet north and 750 feet east of the SW cor. of the C. T. R. R. Survey, A-68. H. Muse and others' No. 1 Dr. G. B. Hamilton, 150 feet north and west of the SE cor. of the N half of Section 1,394, T. E. & L. Survey. Roamer Oil Co.'s No. 1 Mrs. E. I. McClatchey, 150 feet north and west of the SE cor. of the N half of NW of Section 171, T. E. & L. Survey. United Producers and Petroleum Producers Co.'s No. 1 G. C. Shearer, 150 feet north and west of the SE cor. of the W half of the SE of Section 1,394, T. E. & L. Survey.

CORRECTED LOCATIONS

Brown County

Humble Oil & Refining Co.'s No. 1 Jim Gilbreath, 150 feet north and 161 feet east of SW cor. of the J. A. Belvin Survey, A-2,083. Same company's No. 2 Jim Gilbreath, 150 feet north and 503 feet east of the SW cor. of the J. A. Belvin Survey, A-2,083. Same company's No. 3 Jim Gilbreath, 451 feet north and 161 feet east of the SW cor. of the J. A. Belvin Survey, A-2,083.

Gray County

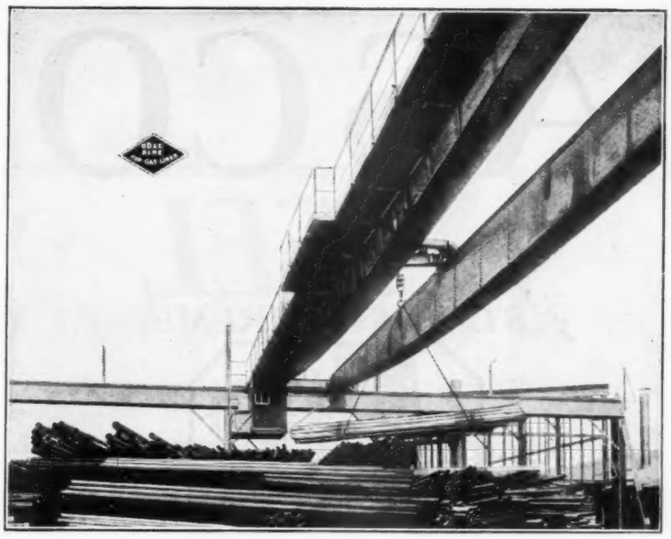
Camel Oil Co.'s No. 1 W. Harrah, 330 feet north and 1,660 feet west of the SE cor. of the north 120 acres of the east 240 acres of Section 163, I. & G. N. Survey, Block 3. Operators Oil Co.'s No. 1 W. Jackson, 330 feet north and east of SW cor. of the N half of the NE of Section 88, H. & G. N. Survey, Block B-2.

Howard County

F. H. E. Oil Co.'s No. 1 John Roberts, 200 feet south and 1,320 feet west of NE cor. of Section 156, Block 29, W. & N. W. Survey.

Montague County

Jamison and others' No. 2 W. R. Cunningham, 150 feet south and 205 feet west of the SW cor. of Gulf Production Co.'s 61.08-acre lease out of the J. N. Hodges Survey, A-1,160, and located on the Jamison and others' 79-acre lease out of the G. Bayne Survey, A-15. Humble



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General Office: St. Louis *Branch:* Tulsa, Okla.

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Silica and graphite mixtures

vs.

a natural combination

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Jersey City New Jersey
1827 ONE HUNDREDTH ANNIVERSARY 1927

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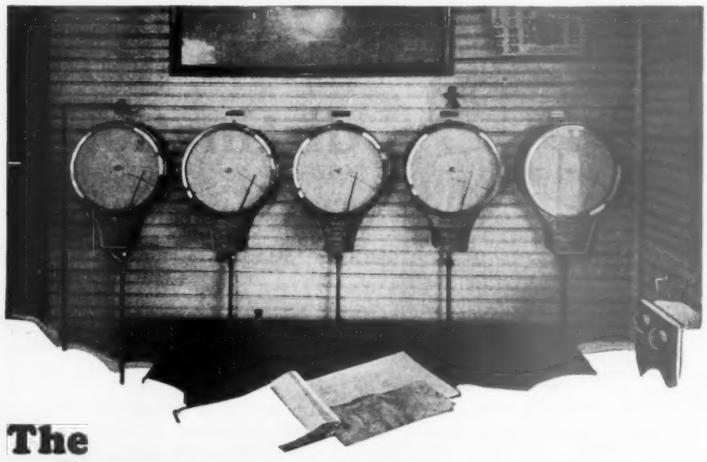
THE ANDREWS STEEL CO.
NEWPORT KENTUCKY



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The most extensive line of Recording Instruments; including recorders for Pressure, Liquid Level, Temperature, Electricity, Motion, Speed, Humidity, etc. *Ask for Bristol's Catalog.*

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The Bristol Company Waterbury, Connecticut

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BRISTOL'S RECORDING INSTRUMENTS

Oil & Refining Co.'s No. 1 Mrs. A. B. Hinton, 3,550 feet south and 1,950 feet west of the NE cor. of the Alex Coats Survey, A-129, being 768 feet north and 99 feet west of the SE cor. of their 120-acre lease.

Hutchinson County

McMan Oil & Gas Co.'s No. 1 Albert Yake, 330 feet north and 2,970 feet east of the most easterly southeast cor. of Section 327, Block Z, E. L. R. R. Survey, and located in Section 39, Block 47, H. & T. C. Survey.

Pecos County

Mid-Kansas Oil & Gas Co.'s No. 1 I. G. Yates-E, 1,352 feet south and 1,432 feet east of the NW cor. of Section 59, Block 1, I. & G. N. Survey. Gulf Production Co.'s No. 2 M. A. Smith and others, 1,422 feet south and 250 feet west of the NE cor. of Section 28, Block 194, G. C. & S. F. Survey.

Wichita County

W. M. Moore's No. 2 R. L. Crudup, 100 feet north and 250 feet east of the SW cor. of Section 10, Denton County School land, League 4, A-417.

NORTH AND WEST TEXAS

WEST TEXAS DAILY AVERAGE PRODUCTION
Week ending October 29, 1927

CRANE COUNTY

Church-Fields-McElroy Pool Company and lease—	Wells	Bbls.
Church et al, University	1	96
Church & Weekley, University	3	1,553
Church & Fields, Duoli-Univ.	1	152
Eastland Oil Co. and Collett, University	8	11,928
Gulf Prod. Co., all leases	63	21,730
Humble O. & R. Co., University	11	5,904
Independent O. & G. Co., University-A	2	Off
University-B	1	*8
Landreth Prod. Corp., Cowden-Anderson	16	15,049
Magnolia Pet. Corp., Univ.-Hardwicke	10	3,395
Univ.-O'Keefe	10	1,073
State Lasseter	3	59
Magnolia Pet. Co. et al, University	4	72
Pecos Oil Co., University	10	4,303
Prairie O. & G. Co., University	6	*172
State-Lasseter	4	*4,549
Simms and Atlantic, University-A	9	4,971
University-B	1	61
University-C	8	21,605
University-D	7	4,633
University-E	1	291
Totals, Simms and Atlantic	26	31,561
Stidham & Thrasher, University	1	10
The Texas Company, University	1	236
Univ.-Beasley	1	52
Tidal Oil Co. et al, University-B	2	60
University-C	1	24
University-E	1	89
University-F	7	*4,113
University-G	2	*429
University-H	2	41
University-I	4	*2,630
Totals, Tidal Oil Co. et al	19	8,386
Totals, Church-Fields-McElroy Pool	200	110,288
Average per well		551
Miscellaneous, Crane County		
Gulf Prod. Co., Waddell	1	30
Independent O. & G. Co., Hughes	1	7
McMan O. & G. Co., Hughes	2	80
Marland Oil Co., all leases	16	740
The Texas Company, King	9	260
Union Land-F	1	7
Miscellaneous totals	30	1,124
Grand totals, Crane County	230	111,422
Average per well		484

CROCKETT COUNTY

Cromwell et al, Powell	3	135
Cushing Ref. & Gas. Co., Powell	1	200
Gulf Prod. Co., Powell & Thompson	6	293
J. K. Hughes Dev. Co., Powell	5	225
Humble and Marland, Powell	9	336
Powell-B	3	445
Sorg	1	0
Republic Prod. Co., Powell	2	150
Roxana Pet. Corp., Powell	1	15
Taylor-Link and Kirby Pet., Powell	1	259
Totals, Crockett County	32	2,058
Average per well		64

ECTOR COUNTY

The Texas Company and J. S. Cosden, Connell-A	1	12

GLASSCOCK COUNTY

Texon and Marland, Settles	2	(†)

HOWARD COUNTY

Bristow & Merrick, A. J. Hooks	3	100
Comet Pet. Co., H. R. Clay	2	24
Dixie Oil Co., H. R. Clay	1	10
F. H. E. Oil Co., John Roberts	1	75
Godley Oil Co., A. J. Hooks	1	32
Gulf Prod. Co., Chalk	1	11
Harrison et al, Dora Roberts	1	20
Humble O. & R. Co., Douthit	2	35
Lockhart & Co., Chalk & Scott	7	147
Magnolia Pet. Co., all leases	36	2,242
Marland Oil Co., all leases	32	1,091
Marland and Group 1 Oil, Harding	1	Off
Midwest Expl. Co., H. R. Clay	3	54
Owens & Sloan, John Roberts	1	25
Pure Oil Co., Chalk & Hooks	4	310
Reeves & Apperman, H. R. Clay	2	80
Sweeney et al, Chalk	1	130
Tidal Oil Co., Otis Chalk	2	60
Totals, Howard County	100	4,486
Average per well		44.8

JONES COUNTY

Atlantic O. P. Co., Howell	1	3
Marland Oil Co., Mason	3	342
Midwest Expl. Co., Thornton	4	184
Phillips Pet. Co., Tessing-Walling	4	268
Joe Winter	3	272
R. M. Beasley	1	60
J. C. Mason	1	150
H. B. Vestal	1	84
Stebbins Oil Co., Higgs	1	15
Totals, Jones County	19	1,387
Average per well		73

LOVING COUNTY

Lockhart & Co., Allen	1	84

MITCHELL COUNTY

Atlantic O. P. Co., Womack	3	230
California Co., all leases	96	2,539
F. J. Carey, E. Morrison	1	30
Eastland Oil Co., all leases	9	177
Magnolia Pet. Co., all leases	22	505
Tidal Oil Co., both leases	2	32
Totals, Mitchell County	138	3,553
Average per well		25

PECOS COUNTY

Allsman & Bell, river bed	1	70
California Co., Yates	4	3,500
Smith	2	1,300
Gulf Prod. Co., M. A. Smith	1	264
Humble O. & R. Co., M. A. Smith	1	138
Marland Oil Co., Yates-A	1	1,139
McMan and Marland, Yates	6	3,358
Mazda Oil and Savoy Oil, Smith	1	600
Mid-Kansas and Transcontinental, Smith-Taylor	2	953
Yates-A	7	12,803
Yates-B	3	6,102
Yates-C	1	960
Totals, Mid-Kansas and Transcontinental	13	20,818
Red Bank Oil Co., Smith	1	25
Roxana Pet. Corp., Tippett	1	273
Smith-A	1	129
Simms Oil Co., Smith	1	360
Texon O. & L. Co., Yates	1	6
Totals, Pecos County	35	31,974
Average per well		913

REAGAN COUNTY

Big Lake Oil Co., University	121	18,160
Texon O. & L. Co., University	79	5,329
Totals, Reagan County	200	23,489
Average per well		117

RUNNELS COUNTY

Ladd, Sillix et al, McMillan	1	115

SCURRY COUNTY

Northwest Oil Co., all leases	5	45

UPTON COUNTY

Amerada Pet. Corp., Hughes	6	275
Atlantic O. P. Co., Sherk	1	85
Bryant & Atlantic, Baker	2	40
Champlin O. & R. Co., Lane	1	2,328
Dixie Oil Co., Burleson	26	2,289
Hughes	10	168
Gulf Prod. Co., all leases	14	3,139
Humble O. & R. Co., Burleson	4	26
Ricker	6	788
Independent O. & G. Co., Burleson, Woolley & Taylor	26	657
McMan O. & G. Co., Baker	2	25
Marland Oil Co., all leases	75	2,538
Prairie O. & G. Co., J. F. Lane	4	665
Allie Lane	4	790
Pure Oil Co., Lane	1	70
Republic Prod. Co., Baker	6	120
Roxana Pet. Corp., Bowen	26	1,880
Estep	3	40
Hughes	10	310
Simms Oil Co., Shirley	3	45
Snowden & McSweeney, Hughes	1	215
Sun Oil Co., Burleson & Taylor	10	218
The Texas Company, Burleson	4	34
King	12	395
Perry	3	1,269
Texon O. & L. Co., Sherk	1	15
Tidal Oil Co., Hughes	1	95
Burleson	2	25
Texas Pacific C. & O. Co., Burleson	1	30
Sherk	4	120
Lane-A	10	2,750
Lane-B	1	30
Wentz Oil Corp., Sherk	3	120
White Eagle O. & R. Co., Hughes	1	10
Totals, Upton County	284	21,554
Average per well		76

WINKLER COUNTY

Cranfill & Reynolds, Ida Hendrick	1	7,524
Gulf Prod. Co., Hendrick	2	*1,322
Independent O. & G. Co., Hendrick	1	28
Landreth and Roxana, Hendrick	1	*897
Murchison Oil and Cranfill Brothers, Grisham-Hunter	1	585
Pure Oil Co., Grisham-Hunter	1	*884
Southern Crude O. P. Co., T-67 Hendrick-A	1	276
T-67 Hendrick-C	3	720
T-88 Hendrick-A	1	890
T-88 Hendrick-B	1	5,150
Totals, Southern Crude et al	5	7,036
Texon O. & L. Co., Grisham-Hunter-A	1	631
Totals, Winkler County	13	18,807
Average per well		1,447
Grand totals, West Texas	1,061	218,986
Average per well		206

*Production partially pinched.
†Shut down for storage.

WELL IN THE "FLOOD" DISTRICT

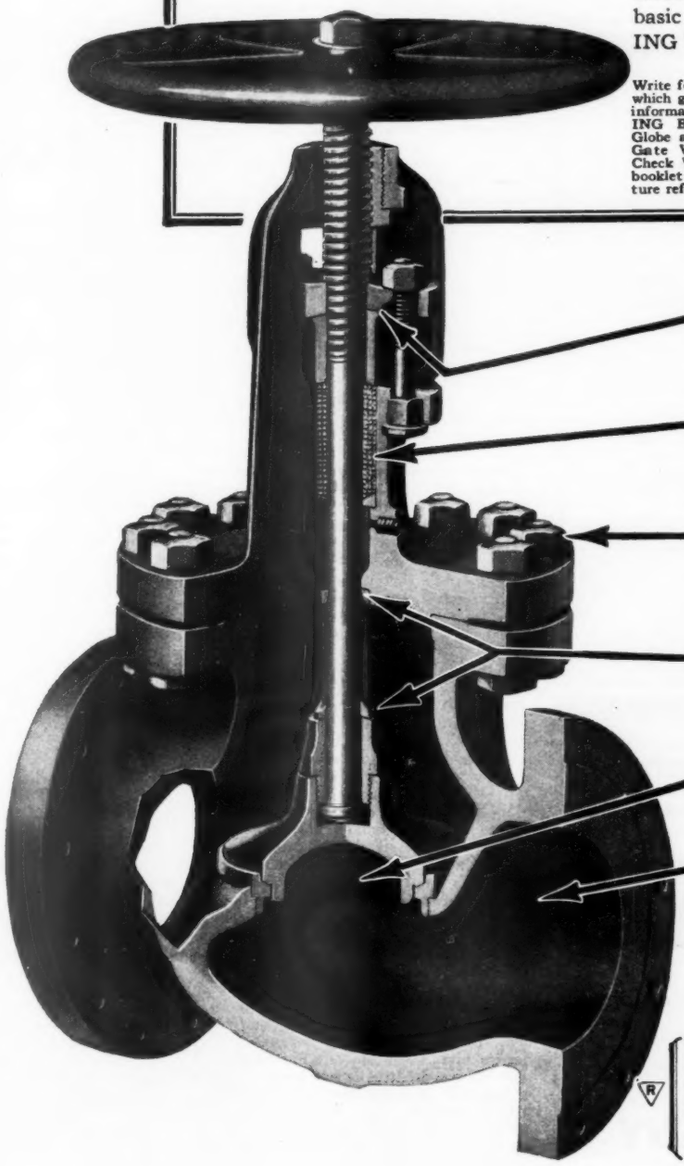
BRADFORD, Pa., Nov. 5.—An oil well with a production of 41 bbls. during the first 24 hours after being completed was brought in on the Kansas Branch lease of George S. Thomas of this city. Mr. Thomas' lease is located 1⅛ miles northeast of Duke Center, in the heart of the "flood" district.

READING
Electric cast steel globe valves

Steel casting is an art not to be acquired over night. Constant research by experienced metallurgists coupled with expert steel foundry practice is necessary to produce, day after day, steel valve bodies which are free from segregation, shrinkage strains and porosity.

Physical characteristics of READING Electric Cast Steel Valves are far beyond actual requirements. The steel is of high quality and the metal sections heavy. This is a basic reason for choosing READING Valves—they are safe.

Write for Bulletin No. 63 which gives more detailed information about READING Electric Cast Steel Globe and Angle Valves, Gate Valves, Stop and Check Valves. Keep this booklet in your file for future reference.



1. There is a ball joint between the gland and follower to prevent binding of the follower in the event of uneven pulling up of the gland bolts.

2. The stuffing box is unusually deep and is filled with a pure asbestos packing. The packing is free of any excess of lubricant which would melt away at high temperature. Also, it is well protected by a deep condensing chamber.

3. The bonnet joint is held with studs made of heat treated steel alloy having a tensile strength of 130,000 lbs. per square inch. The studs are threaded and have a nut on each end.

4. Non-corrosive bonnet bushing is provided, and a repacking collar on the spindle above the stem nut so that the valve may be packed under pressure while wide open.

5. Guide spokes are eliminated from the seat ring as they tend to distort the ring when they are expanded by temperature. The spindle is made heavy enough and is connected to the disc by a long stem nut so that no such guide is needed.

6. Body designed for full flow passage throughout and to retain the seat ring in surface when the valve is heated up.

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An Associate Company of the American Chain Co., Inc.
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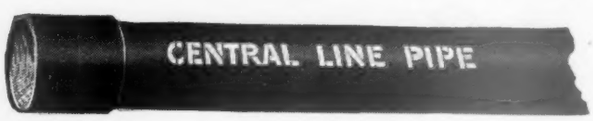
"Central" Oil Country Tubular Goods



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EMPLOYES RESPONSIBLE FOR UNSAFE PRACTICE

(Continued from Page 156)

tion problems I believe you will find that in the main they may be dealt with in three different ways.

First: Where it is possible you may often remove the hazard of eliminating the cause of the accident. To illustrate, simply; around your plants where the danger of personal injury to an imploye exists from use of a defective piece of equipment. You may eliminate the hazard of removing the defective equipment without injuring your operations.

Second: Where the hazard exists and it cannot be removed, use measures to forestall the occurrence of an accident.

To illustrate: In the marketing of petroleum products there is always the fire hazard to combat. Protect yourself with modern fire-fighting equipment and instruct your employes as to its use.

Third: Educate your men through all the devices at your disposal that safety is part of their job; that it pays them dividends and is a great power for doing good. And it is through this last method that we accomplish most, although it is the most difficult and intangible method of promising safety that we have at our disposal. We believe we accomplish this end through the operation of our local safety committee. In our educational program we use the devices familiar to all of you. Lectures by the safety man at the meeting of salesmen, tank wagon drivers and service station men, safety posters furnished by the National Safety Council displayed at all plants and service stations, competition in safety records between various plants and service station divisions. But in our safety committee we have the most effective weapon to combat accidents.

Safety Committees

The safety committee for the Chicago division is composed of the manager, the superintendent of equipment, the shop foreman, two tank drivers, a service station man and the safety man. The personnel changes from time to time so that as many as possible may have an opportunity to serve on the committee. The committee meets each Tuesday at 5 p. m. at the main office. Its purpose is to recommend methods of eliminating and preventing accidents. So far we operate about as all of you do; many, if not all, of you are familiar with the safety committee, its organization and operation. But here I believe we differ.

Our safety committee brings before it each accident considered of importance, by calling in the man or men involved in that accident and having them explain in detail, with diagrams, charts and miniature equipment, the conditions under which the accident took place. With the man involved in the accident is his immediate superior, his foreman, or superintendent, whose duty it has been to investigate the accident immediately after its occurrence and who is before the committee to substantiate or contradict the man's explanation of the accident. After the man has explained his accident he leaves the room while the committe discusses the accident. They then vote on whether or not in their opinion the employe has been at fault. The man is then again called before the committee and is informed of their decision. If the committee believes the accident inexcusable the man is perhaps informed that the committee will recommend his discharge or demotion. If the accident was unavoidable and the man's conduct excellent, the committee does not hesitate to praise him. Now do not misunderstand me. The committee is not a court trying a man. It does not deal out punishment like a court of law. It is a committee of the man's fellow employes sitting to review the accident and to do all in their power to help that man avoid similar occurrences.

Now as to the effect on the man. Without doubt you can see that a man would not care to come in before the committee and explain his accident. In the first place, he comes in on his own time, after working hours, and gets no pay for it. Secondly, no one cares to "go on the carpet" and explain the reason for an accident, whether he is right or wrong in the case. There is always the chance that the committee will not see the man's side of the story, in fact, most times they do not and no one cares to be "bawled out."

Satisfactory Results

Now as to results. Five years ago, before the committee was created, operating about 350 cars and trucks and perhaps 100 service stations in the Chicago field we suffered about 90 accidents per month. Today, with 600 cars and trucks and about 400 service stations, we have on an average 30 accidents per month. This includes all types and kinds of accidents, from a spill of furnace oil on a lawn to a severe automobile collision. Now we are proud of our record and we attribute any improvement we have made to the fact that we have instilled into the minds of our men the fact that they will personally be held accountable for every accident in which they are involved. We have placed the burden of accident prevention on them and consider it as important a part of their job as making their sales quota.

The secret of our success, if you believe we are successful, lies in the fact that figuratively we take off our coats and go after each individual accident. We pick it apart to see what caused it and how we can prevent it in the future. We are earnest and sincere in our work and we try to instill in others that sincerity for accident prevention work.

CARE OF PUMPS IN GASOLINE PLANTS

(Continued from Page 154)

erly lubricated, the operator should have practically no trouble.

Skilled Maintenance

Sixth, although ordinarily pump maintenance or repair work is not a serious item, it should not be expected that pumps can be kept in good condition by any old roughneck or roustabout that happens along. A good repairman must know something about packing and be able to judge whether to use a soft or hard packing, whether the glands should be tight or loose, and also how to take care of valves.

It more than pays to keep a pump in good shape if the saving of steam means anything to the operator. There are many instances where pumps have been overhauled and then found to deliver the same amount of oil at half the speed used before repairing.

Practically every pump operator has his own ideas about what particular packing to use, so the write can only say that he prefers a semimetallic type, which should be packed in tightly with the gland nuts set tight. However, with soft packing the gland nuts should be left just loose enough so that the gland is not working back and forth on the studs, and with some soft packing it may be necessary to slack off the nuts as the packing warms up and begins to expand.

Setting Valves

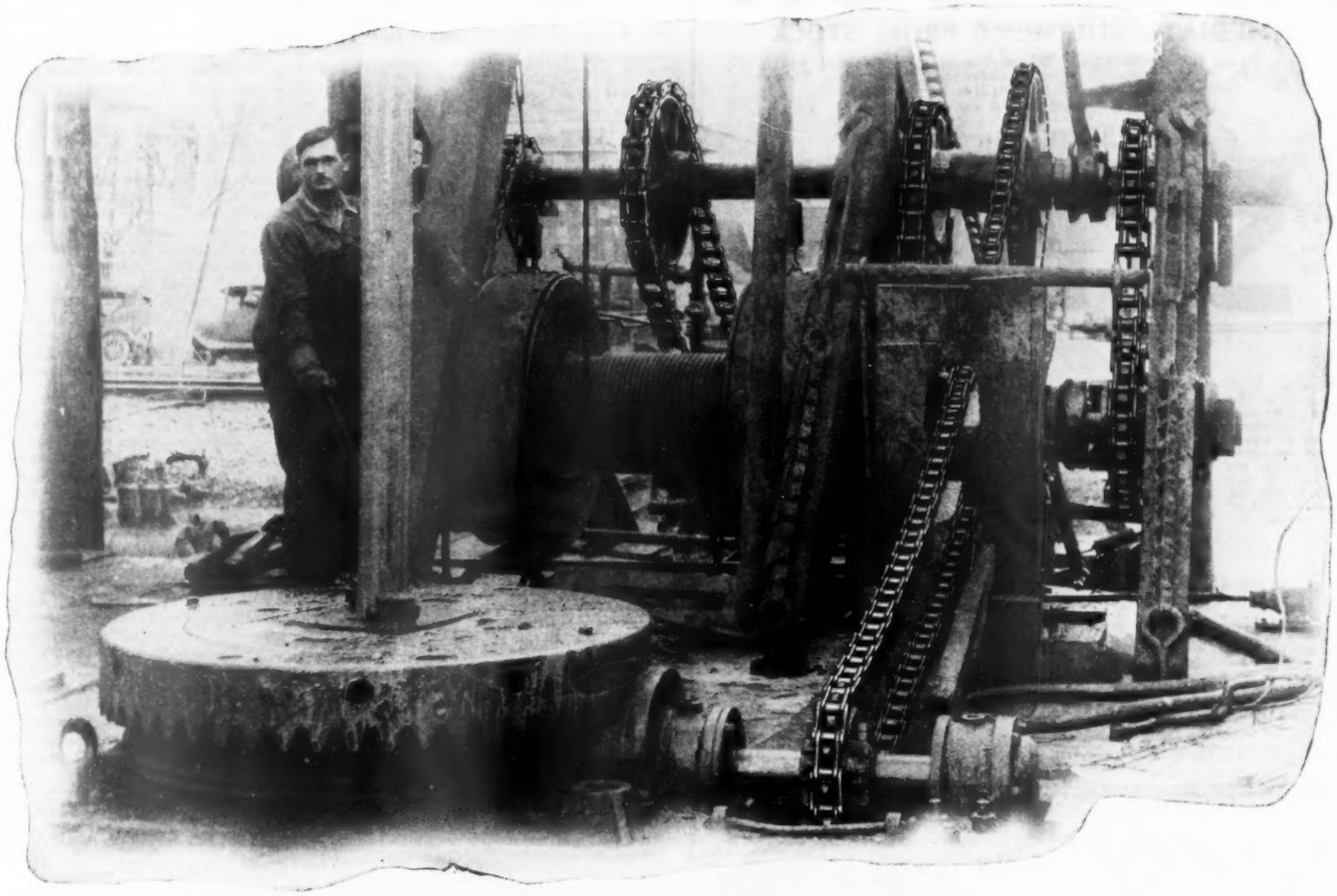
Setting the steam valves on a duplex pump seems to trouble some maintenance men at first. In order to be sure of success, both pistons should be set on the center of their stroke, not forgetting that the crossheads on some pumps are not in the center. It is better to have a mark on the piston rod and take measurements when the heads are bumped at each end of the stroke, so that the exact dead center may be obtained. With both pistons on center and steam chest cover removed, the valve stems should be so adjusted that the same amount of port opening will show on each side when the slack in the valve motion is taken up in either direction.

When the valves are set central in this way and it is found that the pump short-strokes or does not run evenly, other troubles should be sought, such as packing binding, fluid valve sticking, or spring guard broken off, since it is obvious that readjustment of steam valve setting cannot correct some other fault.

The fluid valves and seats need regular inspection and repairs, depending somewhat on the service. Leaking valves rap-

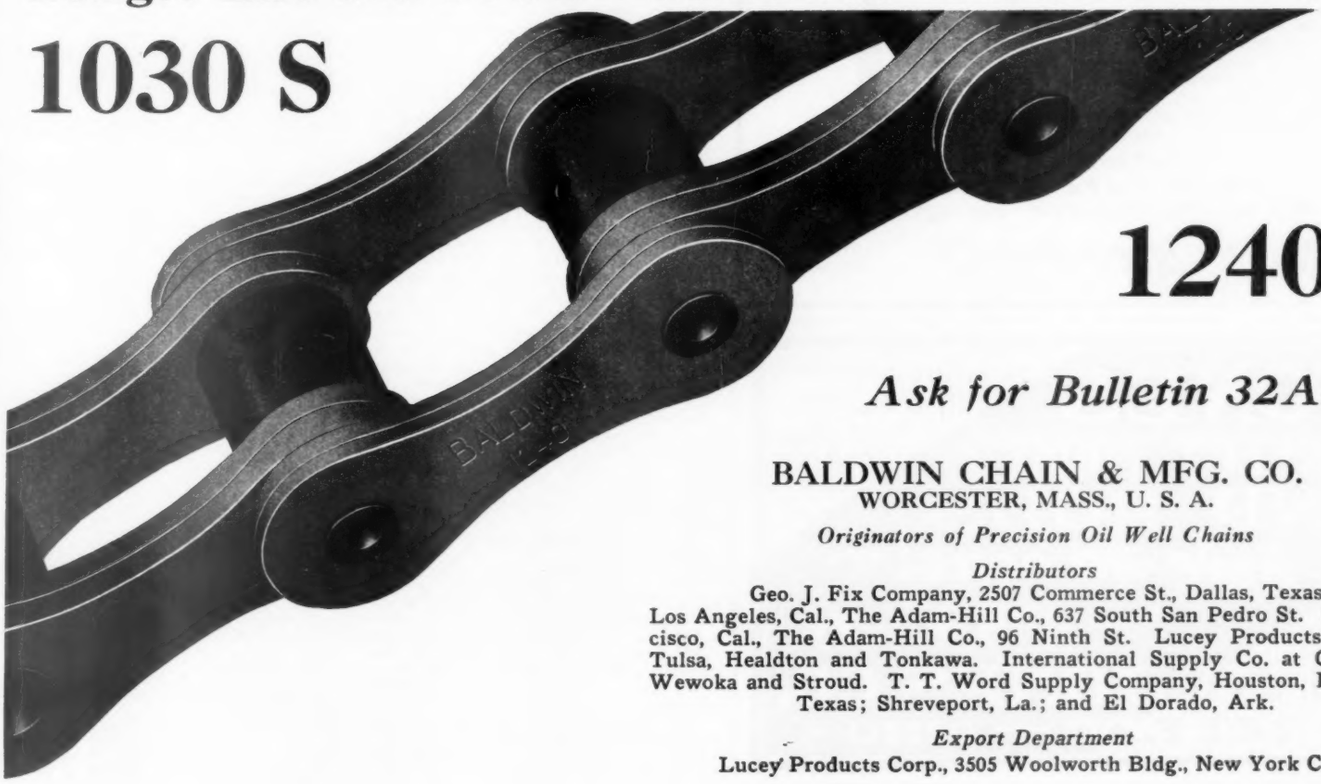
Baldwin Precision Oil Well Chains

Pins and Bushings Ground to Exact Size



Longer Life and Fewer Shutdowns in Actual Operation

1030 S



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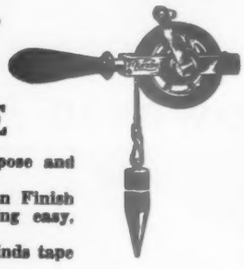

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— TOLEDO — OHIO —

idly cut down pump capacities, and they should be removed and refaced when they show signs of wear. When the ordinary screwed valve seat is replaced, it should not be screwed in so tightly that it will warp all out of shape. After the seats are in, the valve and seat should be checked together to see that there is a good joint. It would be better not to do the job at all than to replace them all warped up in the center.

Type of Valves

There are a good many patent valves on the market, but, after experimenting more or less for the last 10 days, the writer has found that the ordinary valves with which pumps are equipped by the pump manufacturer are usually most satisfactory, except in case of bad water, when good rubber valves may be better.

Another item that is deserving of more attention than is usually given is the insulating and jacketing of pump steam cylinders and steam chests. The writer has seen some rather large pumps come from the factory without a sign of a jacket, and it is his opinion that it is all wrong to leave them this way merely because the factory did not put on insulation and jackets.

The direct-driven reciprocating steam pump has been one of our greatest inventions, and industry would have been under a serious handicap without it, but it has apparently passed its peak and it looks now as if it would not be long until the centrifugal type will have the direct-driven reciprocating type in about the same position as the automobile has the horse, although their flexibility in regard to capacity head and speed, and their nearly uniform efficiency under a wide range of conditions will keep them popular in the oil industry for a long time to come.

FUEL COSTS AT REFINERIES DECREASING

(Continued from Page 154)

gas and a saving of fuel through the burning of the residue gas.

As stated above, the quantity of coal used for fuel at refineries showed little change from 1925. Practically all of the coal is consumed in the eastern and central states, where natural gas is either lacking or prohibitive in price. The refineries of this area, therefore, were vitally interested in the matter of still-gas recovery, which they employed to obtain the fuel made necessary by increased operations.

Much attention has recently been given by refinery engineers to the problem of devising a thoroughly satisfactory burner to utilize the increasing production of pressure-still coke. That some progress was made in 1926 would seem to be indicated by the fact that the consumption at refineries increased from 314,000 short tons in 1925 to 408,000 short tons in 1926, the latter figure being equivalent to over 40 per cent of the total output.

As is quite well known, cracking has become one of the most important phases of modern refinery practice. This process, which consists, in brief, of breaking down high-boiling fractions into lower-boiling fractions by the application of heat, has by reason of the high temperature required, materially increased the fuel demands at refineries. Another factor which has tended to increase fuel consumption at refineries is the ever-growing practice of completely refining crude petroleum; that is, of recovering the lubricating, wax, and asphalt fractions instead of leaving them in the fuel oil.

Measured in B.t.u.

In spite of added fuel requirements, the refineries have by more efficient and economical practice succeeded in reducing the consumption of fuel per barrel of crude petroleum refined. In order to arrive at this conclusion the consumption of the various fuels were reduced to their B.t.u. equivalents according to the following factors:

Oil, 6,000,000 B.t.u. per barrel; coal, 26,000,000 B.t.u. per short ton; gas, 1,050 B.t.u. per cubic foot; coke, 30,000,000 B.t.u. per short ton; one kilowatt hour, 3,415 B.t.u.; wood, 20,000,000 B.t.u. per cord.

These factors gave a total of about 630,000,000,000,000 B.t.u. used in 1926 as compared with 600,000,000,000,000 B.t.u. in 1925 and 305,000,000,000,000 B.t.u. in 1919. There were 361,520,000, 739,920,000 and 779,264,000 bbls. of crude petroleum refined in 1919, 1925 and 1926, respectively, which indicates a requirement of 849,000 B.t.u. per barrel in 1919, of 813,000 in 1925, and of 809,000 in 1926. This decline over a number of years is indicative of the success which has attended fuel economy.

The Appalachian area used the greatest number of B.t.u. per barrel of crude refined, and California the least. In the case of the former, the explanation undoubtedly lies in the great number of small refineries, most of which completely refine the crude oil run to stills. Furthermore, many of these refineries use coal, which ranks comparatively low in the percentage of B.t.u. recovered and used. The fuel requirements of the California refineries per barrel increased in 1926 but are still relatively low, owing to the widespread use of the skimming and topping processes.

Fuel economy has resulted largely from a policy of efficient use rather than through the installation of new apparatus using less fuel. Thus hot still gases are made to preheat the air for fuel combustion and also the feed water for boilers. Heat exchangers, a system by which cold liquids are made to do part of the work of the condensers, have lowered both fuel and water requirements. Exhaust steam is receiving its share of attention, being used to heat buildings, agitators, etc. Operations at the modern refinery are usually conducted on a continuous basis, in contrast to the batch system. One of the most common features associated with modern refinery practice and continuous operation is the pipe still which is not only a time saver but a fuel economizer as well.—Reports of Investigations, Bureau of Mines, Department of Commerce.

CRUDE STOCKS IN THREE STATES SHOW A DECLINE

By James H. Dameron

HOUSTON, Tex., Nov. 5.—Crude stocks in Texas, Louisiana and Arkansas on October 1 totaled 97,526,961 bbls., showing a decline of 1,815,143 bbls. since September 1. In comparison with the crude stock report for October 1, one year ago, there was 10,457,490 bbls. more in storage this year than last.

Crude stocks as of October 1 by fields and districts is given below:

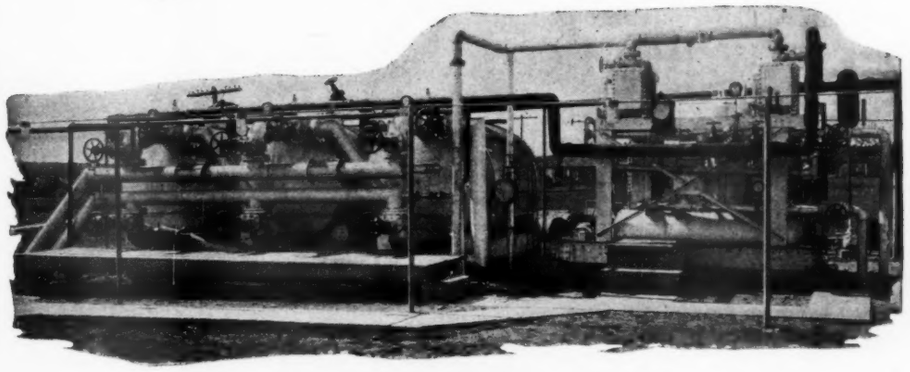
Summary of Crude Oil Stocks in Texas, Louisiana and Arkansas as of October 1, 1927

TEXAS

	Barrels	
Northern District—	Steel	Earthen
N. Cent. Tex., including Eastland-Stephens Counties	9,694,620	.....
Burkburnett	1,137,019	.....
Electra	633,924	.....
Petrolia	75,499	.....
Archer County	275,330	.....
Vernon	53,589	.....
Powell	2,117,275	.....
Mexia	9,246,157	.....
Nocona	109,546	.....
Panhandle	18,160,487	.....
West Texas	4,740,003	.....
Total October 1	46,243,449	.....
Total September 1	48,036,264	.....
Decrease	1,792,815	.....
Southern District—		
Boling	22,389	.....
Batson	2,547	.....
Big Creek	44,000	.....
Damon Mound	8,425	.....
Goose Creek	150,327	189,501
Hull	432,440	150
Humble	1,283,535	1,356,412
Luling	430,859	.....
Lockport	3,000	.....
Liberty	44,341	.....
Markham	9,350	.....
Orange	243,443	25,500
Pierce Junction	84,006	.....
Saratoga	208,106	.....
Spindletop	5,314,575	175,000
Sour Lake	1,652,077	875,040
West Columbia	1,263,917	895,305
Laredo	1,511,711	.....
Total October 1	13,709,057	3,516,908
Total September 1	11,112,631	3,792,382
Increase	1,596,426	275,474
Miscellaneous*—		
Englewood	1,213,723	.....
Norsworthy	395,685	.....
Sinco	658,986	.....
Webster	1,065,100	.....
Texas City	404,000	.....
Lynchburg	102,100	.....

CHAR process

—Of Gasoline Recovery—



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PITTSBURGH, PA.

Baytown	2,299,000	
Pasadena	214,118	
Crosby	39,966	
Almeda	66,308	
Total October 1	6,458,986	
Total September 1	6,233,366	
Increase	225,620	

*Mostly light oils in storage in the tank farms adjacent to coastal refineries and shipping facilities.

LOUISIANA

Northern District—		
Shreveport	3,730,231	
DeSoto	1,141,086	
Bull Bayou-Crichton	46,698	
Urania	94,889	
Cotton Valley	295,558	
Homer	3,157,602	
Haynesville	4,442,649	
Bellevue	251,389	
Total October 1	13,160,102	
Total September 1	13,087,943	
Increase	72,159	
Southern District—		
Evangeline	56,428	
Vinton	208,538	
Lockport	334,165	
Total October 1	599,131	
Total September 1	710,445	
Increase	111,314	

ARKANSAS

El Dorado	2,463,442	
Smackover	12,118,014	
Nevada County	257,872	
Total October 1	14,839,328	
Total September 1	16,369,083	
Decrease	2,529,755	

RECAPITULATION

Dist.—	Oct. 1	Sep. 1	Oct. 1, '28
N. Texas	46,243,449	48,036,264	27,087,668
Southern (steel)	12,709,057	11,112,631	7,731,089
Southern (earthen)	3,516,908	3,792,382	5,849,942
Miscellaneous	6,458,986	6,233,366	6,801,177
N. Louisiana	13,160,102	13,087,943	14,268,817
S. Louisiana	599,131	710,445	469,198
Arkansas	14,839,328	16,369,083	24,861,582
Total	97,526,961	99,342,114	87,069,471

SOUTHERN CRUDE OIL'S ARKANSAS CONNECTIONS

SHREVEPORT, La., Nov. 6.—Southern Crude Oil Purchasing Co. has closed its El Dorado offices and is handling its remaining Arkansas affairs from Shreveport headquarters. All connections formerly operated by the company have been taken over by the Shreveport-El Dorado Pipe Line Co., totaling approximately 3,100 bbls. daily on which it is paying a 10-cent premium above the Standard's posted price of 90 cents for Smackover heavy oil. Shreveport-El Dorado Pipe Line Co. also is running Phillips Petroleum Co. production paying a 10 cent premium and with these new connections will probably be running between 7,000 and 10,000 bbls. of Smackover crude daily.

One of the largest purchases of Smackover oil made recently and the beginning of an improvement in marketing conditions governing that crude was the purchase by H. H. Cross of 75,000 bbls. at 10 cents over the posted price, deliveries to be made at the rate of 10,000 bbls. daily.

HEAVY OIL ENGINE FOR CARS

A company known as La National Mecanique has been formed in Belgium to build automobiles equipped with the Held heavy oil engine. The engine is a four-cylinder one of 3.54-inch bore by 4.33-inch stroke (85 cubic inches), and operates on the two-stroke cycle.

GERMAN PRODUCTION GROWS

The production of petroleum from the German oil fields has considerably increased in the past two years, due to the discovery of deep oil sands, and also to the assistance obtained in locating well sites from geophysical methods. The present production is about 7 per cent of the annual consumption of oil fuel by Germany, but it is suggested that this could be further increased, in an article by Otto J. Hassen in Allegemeine osterr. Chemiker und Techniker Zeit.

GROWTH OF OIL USE

At the port of Southampton, England, in 1922 three companies supplied petroleum products to ships, with shore and floating storage capacity totaling 76,000 tons. There are now five companies with a total storage capacity of 137,000 tons.

The Tret-O-litE Process is Simple!

This method of treating "cut oil" is fundamentally simple and direct. Once correctly installed, it is easily handled and practically fool-proof.

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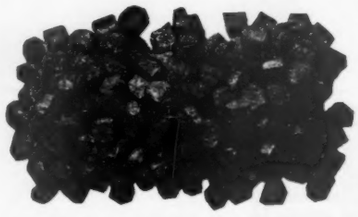

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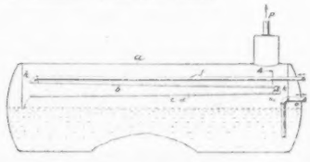
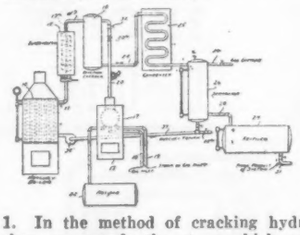
1,645,969. Apparatus for Completely Separating Gasoline from Mineral Oil. Arthur E. Pew, Jr., Bryn Mawr, and Henry Thomas, Ridley Park, Pa., assignors to Sun Oil Co., Philadelphia, Pa., a corporation of New Jersey. Filed February 23, 1924. Serial No. 694,475. 5 Claims. (Cl. 196—135.)



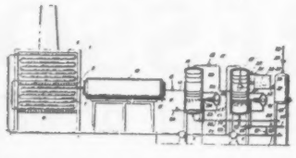
1. In an apparatus for effecting a substantially complete separation of gasoline from mineral oil, a still comprising an elongated container adapted to hold a substantial body of oil, means to receive and laterally distribute oil in the upper part of the container, an oil conveyor comprising a succession of inclined pans arranged in the upper part of the container and down which the oil admitted to the container is adapted to successively flow in a relatively thin layer and discharge into the oil body, and means insuring the maintenance of an equal volume of oil on opposite sides of the longitudinal central part of the upper pan and insuring the equal lateral distribution of oil from the upper pan to the part of the oil conveyor immediately beneath it.

1,643,036. Method of and Apparatus for Treating Hydrocarbons. Charles P. Tolman, Kew Gardens, N. Y. Filed April 26, 1926. Serial No. 131,572. 2 Claims. (Cl. 196—197.)



1. In the method of cracking hydrocarbon compounds the steps which consist in vaporizing mercury, superheating the produced vapor to above the desired cracking temperature, subjecting the hydrocarbon to vaporizing conditions, but without causing substantial cracking thereof and commingling the hydrocarbon vapor produced with said superheated mercury vapor, said mercury vapor being of such thermal quality as to temperature and heat units as to constitute substantially the sole source of heat for said cracking reaction.

1,644,991. Process for Converting Oil. Walter M. Cross, Kansas City, Mo., assignor to Gasoline Products Co., Inc., New York, a corporation of New York. Filed April 3, 1923. Serial No. 629,723. 1 Claim. (Cl. 196—48.)



A process for converting oil comprising raising the oil to a cracking temperature in a heating stage, passing the oil to a conversion stage and there maintaining it under sufficient pressure imposed by the generated vapors during reaction to maintain the oil in substantially the liquid phase, relieving the pressure on the oil and passing it through a vaporizing stage and there separating the liquid and vaporous oil constituents, subjecting the vapors evolved to a fractional condensing action and returning selected portions of the condensate to the heating stage and to the fractional condensing stage with the charging stock, and maintaining a regulated liquid level in the vaporizing and fractional condensing stages.

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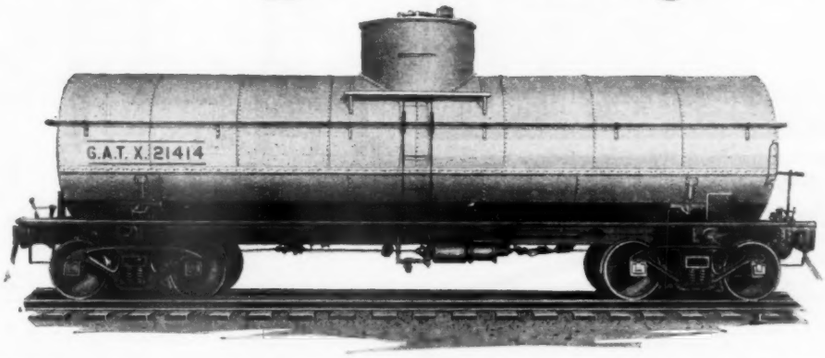

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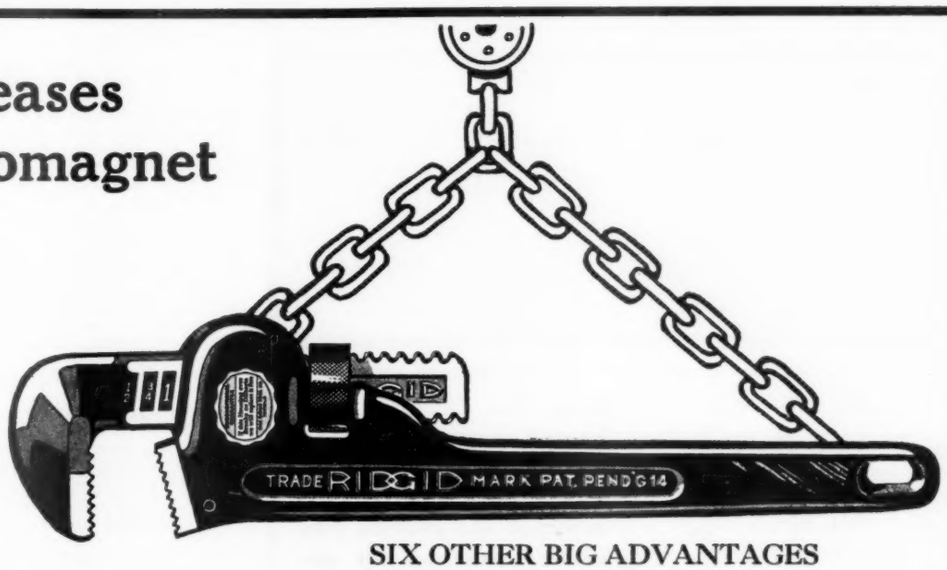

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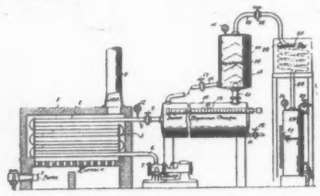
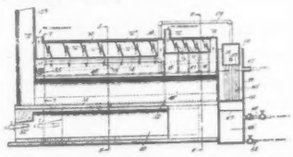
1,638,115. Process of and Apparatus for Cracking Oil. Gustav Egloff, Chicago, Ill., assignor to Universal Oil Products Co., Chicago, Ill., a corporatoin of South Dakota. Filed December 13, 1920, Serial No. 430,125. Renewed March 24, 1927. Three claims. (Cl. 196—48.)



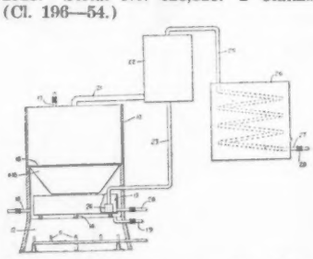
1. The process of cracking petroleum oil, comprising heating the oil by passing the same in a small stream of restricted cross section through a heating chamber under pressure, in discharging the oil in a substantially liquid phase into an enlarged expansion chamber where vaporization takes place, in locally and positively heating the upper portion of said expansion chamber to impart heat to the vapors therein by applying heat to the chamber substantially along its entire length, in discharging the vapors to a reflux condenser, in retreating the reflux condensate separated from the vapor, and in maintaining the vapor pressure on the oil in said dephlegmator and expansion chamber.

1,646,449. Oil-Distillation Process. Edward C. D'Yarmett, Kansas City, Mo., assignor of one-half to O. K. Herndon, Kansas City, Mo. Filed December 16, 1926. Serial No. 155,208. 6 Claims. (Cl. 196—125.)



6. The process of distilling liquid hydrocarbons which consists in continuously causing the liquid to flow longitudinally through a container having a heated surface, progressively increasing the heat longitudinally of the container in the direction of oil flow, moving by convection the traveling liquid in a plurality of local cyclic circulations over said heated surface whereby the advancing liquid in said circulations repeatedly passes over said progressively heated surface in defined cyclic streams and the produced vapors and heavier liquid fractions commingle, the path of said circulations being disposed substantially vertically and transversely of the longitudinal path of travel and drawing off vapors from above the circulating liquid.

1,645,553. Treating Hydrocarbons. Rene de M. Taveau, Elizabeth, N. J., assignor, by mesne assignments, to The Texas Company, New York, a corporation of Delaware. Filed March 16, 1923. Serial No. 625,525. 2 Claims. (Cl. 196—54.)



1. The process of converting higher boiling hydrocarbons into lower boiling ones that comprises maintaining a body of oil in a still and applying heat to the bottom of the still to heat the oil to a vaporizing temperature while retaining a quiescent pool of aluminum chlorid material within said still, said pool being spaced and separated from the heated bottom of the still.

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Pipe Line Statement for September

Runs

Company—	Month	Dy. Av.
*Prairie P. L. Co.	4,440,000	148,000
Gulf P. L. Co.	1,520,497	50,683
Texas P. L. Co.	979,100	32,637
Magnolia Pe.. Co.	1,800,446	60,016
Cosden P. L. Co.	1,044,868	34,795
Empire P. L. Co.	1,413,135	47,104
*Sinclair P. L. Co.	2,937,000	97,900
Oklahoma P. L. Co.	3,972,701	132,423
*Other lines	9,330,000	311,000
Total September	27,436,777	914,558
Total August	29,968,654	966,729

Shipments

Company—	Month	Dy. Av.
†Prairie P. L. Co.	5,321,180	177,373
Gulf P. L. Co.	1,037,583	34,586
Texas P. L. Co.	1,030,794	34,360
Magnolia Pet. Co.	1,822,192	60,740
Cosden P. L. Co.	1,128,668	37,622
Empire P. L. Co.	1,064,708	35,490
†Sinclair P. L. Co.	2,665,431	88,848
Oklahoma P. L. Co.	3,685,455	122,845
*Other lines	7,650,000	255,000
Total September	25,406,211	846,874
Total August	27,725,815	894,380

Stocks

*Prairie O. & G. Co.	30,600,000
*Prairie P. L. Co.	2,000,000
Gulf P. L. and Gypsy Oil Co.	9,520,009
The Texas Company	5,044,860
Magnolia Pe.. Co.	6,062,411
Cosden P. L. Co.	3,188,696
Empire P. L. Co.	4,570,658
*Sinclair Crude Oil Pur. Co.	20,000,000
Oklahoma P. L. Co.	2,685,504
Carter Oil Co.	15,958,647
*Other lines	10,000,000
Total September	109,566,085
Total August	107,372,988
Difference	2,193,097

*Estimated. †Prairie Pipe Line shipments include Texas crude oil and Sinclair Pipe Line shipments include Texas and Wyoming crude oil.

Note: Stocks do not include approximately 5,000,000 bbls. of crude oil held in storage on private tank farms and leases, and approximately 1,750,000 bbls. of Texas Panhandle crude held in storage in Kansas and Oklahoma.

EASTERN PIPE LINES

Runs From Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for August and September:

	Aug. '27	Sept. '27
National Transit ..	146,479.36	148,770.19
S. W. Pa. P. L. ...	86,548.23	85,669.19
Eureka P. L.	395,237.23	386,301.76
Buckeye P. L. (Macksburg)	343,331.35	324,616.49
Buckeye P. L. (Cleveland)	11,953.23	11,430.57
Buckeye P. L. (Lima, etc.)	129,837.26	134,867.84
Indiana P. L.	8,905.59	9,150.58
Cumberland P. L...	267,515.04	245,038.71
N. Y. Transit	25,032.15	22,582.06
Tidewater P. L. ...	197,502.70	188,881.97
Pure Oil	164,866.70	159,336.57
Emery P. L.	59,569.14	57,479.57
Paragon Dev.	30,552.65	24,062.15
Pittsburgh P. L. ..	4,824.41	4,956.74
Stoll Oil Ref.	15,831.15	15,315.87
Total	1,886,988.19	1,808,560.89
Daily average ..	60,870.42	60,285.39

Note—Indian Refining Co. also reported other receipts of 275,293.93 bbls. Paragon Refining Co. had other receipts of 202,741.28 bbls. Paragon Development had other receipts of 24,753.46 bbls.

Petroleum Deliveries

The following tables exhibit the shipments or regular diliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for August and September:

	Aug. '27	Sept. '27
National Transit ..	344,799.78	352,368.94
S. W. Pa. P. L. ...	343,310.98	352,238.47
Eureka P. L.	198,755.14	181,601.67
Buckeye P. L. (Macksburg)	153,543.57	144,078.47
Buckeye P. L. (Cleveland)	737.43	971.43
Buckeye P. L. (Lima, etc.)	748,093.86	861,075.42
Indiana P. L.	868,709.30	840,001.40
Cumberland P. L. .	150,233.42	141,790.84
N. Y. Transit	289,844.19	316,049.51
Northern P. L.	196,331.58	188,878.47
Tidewater P. L. ...	150,113.65	133,684.94
Pure Oil	205,913.45	176,414.97
Emery P. L.	54,557.91	59,423.76
Paragon Ref.	177,675.03	203,284.13
Ind.an Ref.	379,066.52	343,722.80
.aragon Dev.	31,192.30	26,388.83
Pittsburgh P. L. ..	5,395.27	5,410.13
Total	4,298,243.43	4,326,377.16
Daily average ..	138,653.01	144,212.57

Gross Stocks

The gross stocks held by various pipe lines in the oil producing sections of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky at the close of August and September:

	Aug. '27	Sept. '27
National Transit .	1,129,180.77	1,154,733.90
S. W. Pa. P. L. ..	683,536.32	648,789.30
Eureka P. L.	1,949,985.99	1,803,066.25
Buckeye P. L. (Macksburg) ...	416,688.27	421,560.39
Buckeye P. L. (Cleveland)	39,918.38	50,869.14
Buckeye P. L. (Lima, etc.) ...	4,668,115.54	4,829,631.04
Indiana P. L.	620,873.22	621,333.99
Cumberland P. L.	591,843.81	614,472.24
Southern P. L. ...	429,471.58	466,091.05
N. Y. Transit	460,922.97	507,189.10
Northern P. L.	479,103.63	534,035.12
Pure Oil	395,429.71	400,830.33
Emery P. L.	13,506.50	12,401.24
Paragon Ref.	15,696.20	15,860.76
Indian Ref.	93,156.64	132,910.52
Paragon Dev.	6,821.39	6,145.06
Pittsburgh P. L. ..	3,864.26	2,978.00
Total	11,989,115.18	12,212,716.43
Increase	535,987.21	223,601.25

Grades of Oil

The following table shows the amount of the different grades of oil held by the eastern pipe lines at the close of August and September, showing the gross stocks of the above fields:

	Aug. '27	Sept. '27
Pennsylvania	4,238,474.19	4,235,065.02
Lima	1,018,062.71	1,078,066.52
Kentucky	1,134,629.10	1,144,347.96
Mid-Continent	5,531,964.28	5,691,414.41
Illinois	65,894.90	63,822.51
Total	11,989,115.18	12,213,716.43

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1924	1925	1926	1927
Jan.	62,638	56,831	55,630	56,209
Feb.	68,023	60,606	60,394	61,298
Mar.	68,721	60,575	61,644	63,247
April	71,058	63,062	63,019	60,337
May	63,943	59,217	60,580	60,284
June	63,230	61,270	64,131	62,757
July	64,208	62,639	63,206	58,574
Aug.	59,947	59,656	61,815	60,876
Sept.	62,930	62,510	64,639	60,285
Oct.	64,976	60,995	62,704	.....
Nov.	56,282	59,350	61,774	.....
Dec.	55,814	57,974	58,755	.....

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

	1924	1925	1926	1927
Jan.	145,518	157,889	156,056	141,227
Feb.	148,732	160,863	159,488	138,534
Mar.	147,098	154,591	150,239.	133,777
April	147,611	151,429	152,371	140,327
May	134,997	146,995	160,998	144,894
June	143,010	149,467	160,257	149,772
July	124,187	161,338	160,945	151,350
Aug.	125,120	161,730	151,929	138,653
Sept.	127,325	156,719	158,915	144,213
Oct.	122,170	145,388	161,132	.....
Nov.	124,400	143,582	152,668	.....
Dec.	151,392	150,162	136,428	.....

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields, including oil received from other lines at the close of each month for the past three years:

	1925	1926	1927
Jan.	11,353,276	9,959,170	9,718,003
Feb.	11,192,924	9,579,354	10,119,162
Mar.	11,158,297	9,438,293	10,794,044
April	11,062,082	9,805,851	11,113,295
May	11,207,562	9,531,757	11,359,321
June	11,093,796	9,585,904	11,493,673
July	11,067,453	9,734,687	11,452,123
Aug.	10,974,481	9,668,947	11,989,115
Sept.	10,781,753	9,433,732	12,212,716
Oct.	11,086,850	9,289,806	.....
Nov.	11,068,158	9,257,667	.....
Dec.	10,458,445	9,454,512	.....

Franklin Pipe Line Co.

The following table exhibits the condition of the Franklin Pipe Line at the close of business for the months named and not counted in the stocks and averages reported above.

	Runs	Shipments	Stocks
1926—			
Sept.	2,788.18	3,373.06	13,985.63
Oct.	2,991.86	2,307.75	14,671.25
Nov.	2,810.60	1,864.55	15,817.31
Dec.	2,847.52	5,561.11	13,103.72
1927—			
Jan.	2,641.54	1,470.42	14,274.84
Feb.	2,764.30	1,082.82	15,956.34
Mar.	2,587.20	1,878.56	16,664.98
April	2,834.23	1,512.65	17,986.54
May	2,768.47	539.29	20,215.72
June	2,946.29	664.40	22,497.61
July	3,153.39	1,276.61	24,374.39
Aug.	3,057.89	8,713.11	18,719.17
Sept.	3,309.56	2,656.48	19,372.25

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks, October 1	2,062,018.95
Other receipts	243,655.75
Runs from wells	591,009.13
Regular deliveries	405,432.70
Other deliveries	483,089.13

The amount of Illinois oil run by the Tidewater Pipe Co. in September was 28,580.36 bbls. and deliveries were 27,779.79 bbls. Adding these figures to those of the Illino s Pipe Line Co. makes the runs and deliveries as follows:

	Runs	Deliveries
1926—		
September	688,798.66	516,983.95
October	681,648.96	531,467.39
November	651,263.33	498,439.37
December	668,909.58	587,947.65
1927—		
January	621,421.03	530,085.98
February	595,831.16	476,950.71
March	727,593.91	554,947.43
April	593,225.97	444,918.49
May	728,759.40	543,192.02
June	640,975.85	532,217.78
July	613,901.30	484,902.65
August	651,276.40	529,331.37
Septem er	619,589.49	433,212.49

Tidewater Pipe Co., Ltd., also delivered in September 218,229.09 bbls. of Oklahoma oil.

AVERAGE DAILY RECEIPTS OF CALIFORNIA OIL AT ATLANTIC AND GULF COAST PORTS

Average bbls. per day—	ATLANTIC PORTS						GULF COAST PORTS						Total All Ports
	Baltimore	Boston	New York	Philadelphia	Others	Total	Galveston	New Orleans Baton Rouge	Por. Arthur Sabine Pass	Tampa	Total		
May	10,452	7,646	18,387	9,226	6,226	51,935	.....	.....	.....	.....	.....		51,935
June	25,567	11,233	48,833	17,367	17,367	120,367	.....	.....	.....	.....	.....		120,367
July	13,484	17,290	33,065	9,129	5,451	78,419	.....	.....	.....	.....	968		79,387
August	18,516	3,965	48,129	17,323	26,000	113,932	.....	.....	.....	.....	.....		113,932
September	23,033	6,967	51,400	14,567	19,533	115,500	.....	.....	.....	.....	.....		115,500

AVERAGE DAILY IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS

Average bbls. per day—	ATLANTIC PORTS						GULF COAST PORTS					Total All Ports
	Baltimore	Boston	New York	Philadelphia	Others	Total	Galveston	New Orleans Baton Rouge	Por. Arthur Sabine Pass	Tampa	Total	
May	21,032	9,807	93,452	7,774	23,580	155,645	1,807	30,612	1,936	.....	34,355	190,000
June	18,167	9,700	83,867	10,900	16,567	139,200	2,000	31,800	.....	.....	33,800	173,000
July	22,226	10,387	80,193	7,193	28,710	158,710	3,226	25,065	806	.....	29,096	187,806
August	19,323	9,032	80,903	14,258	31,821	155,387	2,097	21,161	.....	.....	23,258	178,645
September	28,033	11,433	85,500	12,800	37,700	175,467	5,667	19,233	.....	3,600	28,500	203,967

GROSS PRODUCTION OF THE UNITED STATES FOR 12 MONTHS

(IN BARRELS)

		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Rocky Mountains	Eastern Fields	Total
1926—										
October:	Month	18,966,058	15,720,689	19,001,388	3,714,637	4,625,138	2,166,559	3,071,720	3,398,000	70,664,189
	Daily average	611,808	507,119	612,948	119,827	149,198	69,889	99,088	109,613	2,279,490
November:	Month	19,173,128	16,876,950	18,593,160	3,593,490	4,299,480	2,054,911	2,842,587	3,216,000	70,649,706
	Daily average	639,104	562,565	619,772	119,783	143,316	68,497	94,752	107,200	2,354,990
December:	Month	20,276,950	17,582,908	19,753,591	3,664,166	4,266,189	2,018,724	2,658,301	3,313,000	73,823,829
	Daily average	654,095	576,868	637,212	117,876	137,619	65,120	85,752	106,871	2,381,414
1927—										
January:	Month	20,184,872	19,035,426	18,605,363	3,769,879	4,076,469	1,905,570	2,620,303	3,332,500	73,530,382
	Daily average	651,125	614,046	600,173	121,609	131,499	61,470	84,203	107,500	2,371,948
February:	Month	17,982,711	19,752,348	16,483,712	3,352,076	3,574,256	1,784,104	2,385,135	3,007,200	68,321,542
	Daily average	642,240	705,441	588,704	119,717	127,652	63,718	85,183	107,400	2,440,057
March:	Month	19,835,724	22,480,921	18,232,617	3,675,143	3,853,920	2,032,982	2,476,798	3,335,800	75,923,905
	Daily average	639,862	725,191	588,149	118,553	124,320	65,580	79,574	105,100	2,449,158
April:	Month	19,493,825	22,208,130	17,801,140	3,516,930	3,378,240	1,994,330	2,615,770	3,474,000	74,482,365
	Daily average	648,870	740,271	593,371	117,231	112,608	66,491	87,193	116,800	2,482,745
May:	Month	19,506,054	23,258,463	19,539,083	3,704,314	3,493,669	1,935,175	2,742,588	3,467,000	77,646,346
	Daily average	629,238	750,273	630,293	119,494	112,699	62,425	88,471	111,839	2,504,721
June:	Month	19,181,442	22,830,330	18,299,810	3,437,580	3,366,760	1,880,820	2,592,437	3,330,000	75,018,179
	Daily average	639,381	761,011	613,327	114,586	112,192	62,694	86,414	111,000	2,500,606
July:	Month	19,319,021	26,522,546	17,607,194	3,454,082	3,406,683	2,279,405	2,635,607	3,373,000	78,597,538
	Daily average	623,194	855,566	567,974	111,422	109,893	73,529	85,020	108,806	2,575,401
August:	Month	19,279,131	26,283,350	17,715,229	3,424,570	3,242,600	2,199,905	2,630,065	3,608,400	78,283,250
	Daily average	621,907	847,850	571,459	110,470	104,600	70,964	81,615	116,400	2,525,266
September:	Mon h	19,064,500	24,111,660	18,322,800	3,342,240	3,032,970	2,027,070	2,238,600	3,345,000	75,484,840
	Daily average	635,483	803,722	610,760	111,408	101,099	67,569	74,620	111,500	2,512,828
Total 12 months		232,271,916	256,963,721	220,055,037	42,628,097	44,615,374	24,279,565	31,409,820	40,199,900	892,434,080

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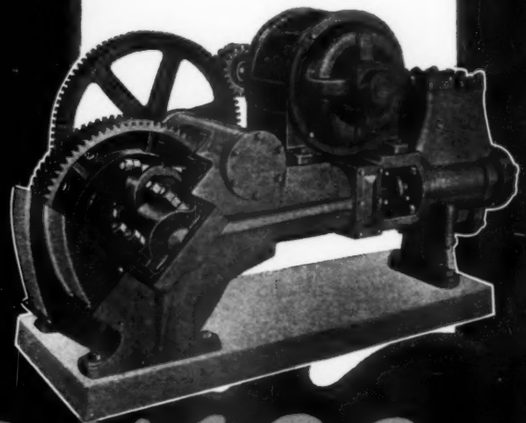

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Specification

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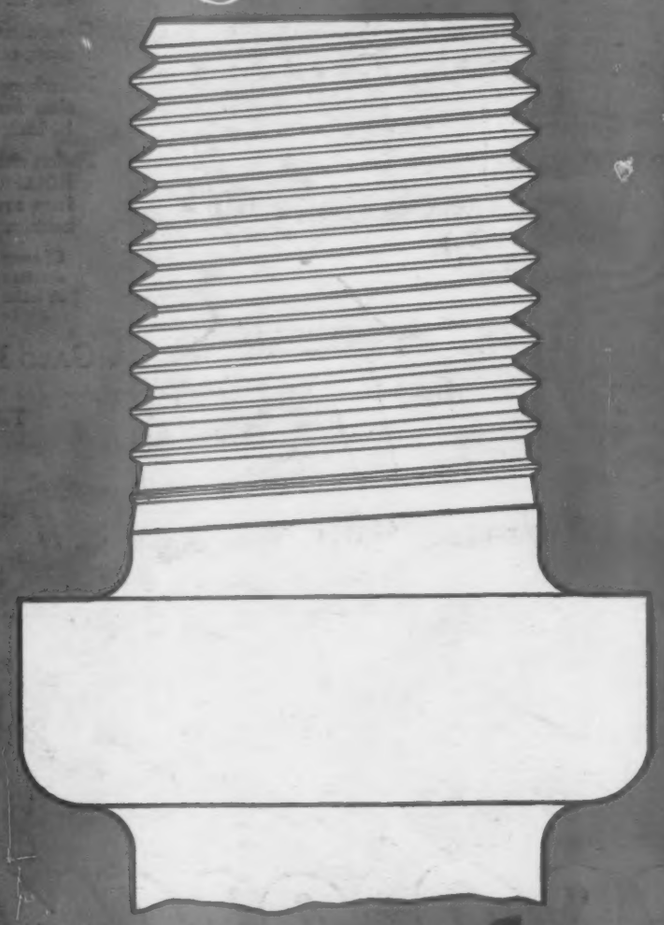

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